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The Development and Future Direction of Malaysia's Livestock Industry

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INTRODUCTION

Malaysia's livestock industry is an important and one of the fundamental industries in the country's agricultural development. It provides lucrative employment, supplies the domestic requirements of meat, milk and dairy products to the population. The development of the industry will ensure the food security in the country and reduces dependency on meat imports. In 2013, the livestock sector accounts for about 12.4% of the total agricultural gross domestic product (GDP) (Shanmugavelu, 2014). The poultry sub-sector is a major contributor to livestock GDP with the rate at 62.9% whereby the ruminant sub-sector contributes the least at 12.1% (Shanmugavelu, 2014). This industry also employs around 20% of the country's agricultural sector labor-force. It contributes substantial earnings to households through sale of livestock and livestock products; and provides raw material for agro-industries. As Malaysia is experiencing rapid economic and human population growth, it has led to an increase in the demand-driven consumption of livestock products. Based on the Malaysian National Agro-food Policy 2011-2020 (NAP), the demand and production for meat are expected to increase. The demand is expected to increase from 1.4 million MT in 2010 to 1.8 million MT in 2020 with a growth of 2.4% per annum while meat production is forecast to increase from 1.6 million MT to 2.1 million MT respectively with a growth of 2.7% per annum in the same period. The demand increase is also expected for other livestock products such as milk and eggs.

Livestock industry

Livestock industry in Malaysia comprises of ruminants and non-ruminants. Currently, the ruminant sector which consists of beef and dairy cattle, dairy buffaloes, sheep and goats are still raised in small-scale (Mohamed, 2007). Favorable progress has been observed in recent years, but it is still unable to meet the local demand. Thus, Malaysia imports most of the needs of beef mutton and dairy products from abroad especially India, Australia and New Zealand to cater for the shortage. In 2014, the levels of self-sufficiency (SSL) for beef, mutton and milk were 24.84%, 13.10% and 12.93% respectively (Table 1). The lag in this

ruminant sector is normally associated with several factors such as the lack of land resources, high feed price, cheaper import substitutes, poor private-sector involvement (Shanmugavelu, 2014), disease prevention and control (Mohamed, 2007), and lack of quality breeds, expertise and workforce (National Agro-food Policy 2011-2020).

Table 1. Self-sufficiency levels of livestock products, 2006 – 2014 (%)

Commodity	2006	2010	2014[Estimate]
Beef	21.78	30.12	24.84
Mutton	8.99	12.13	13.10
Poultry	98.85	95.36	93.87
Eggs	124.94	105.55	104.87
Pork	109.06	114.63	120.55
Milk	4.66	8.49	12.93

Source: Department of Veterinary Services, Malaysia

In contrast, the non-ruminant sub-sector such as poultry (broilers and eggs) and swine is well developed in terms of production capacity and technology. It has achieved high level of self-sufficiency (Table 1). The sub-sector has achieved production scale and mostly commercially operated by large multi-national integrators. Nevertheless, there are also commercialized domestic producers and integrators who are also important players in the industry. Technology transfer and adoption have made it possible for non-ruminants to develop rapidly. Both poultry and swine are dominating the local livestock and internationally competitive for export and simultaneously decreasing the balance of trade for food commodities. This industry will continue to be emphasized and further developed so that the competitiveness and sustainability of the industry is increased. However, a pertinent issue to the non-ruminant sector is it's heavily dependence on imported feedstuffs such as cereal grains (e.g. soybean, maize), vegetables and animal proteins as ingredients in feed ration. The cost of imported feed ingredients is subjected to price variability and foreign exchange rates. Hence, the currency crisis makes it very costly to maintain the current levels of import of feedstuffs and subsequently increase the feed price. This sector is also facing hygienic issues whereby the high concentration of animals within specific locations leads to water pollution and environment degradation. As far as diseases are concerned, the major threats to poultry are the avian influenza, while swine is susceptible to Nipah virus or the JE. The closed system for rearing has become compulsory for all farmers to mitigate any disease outbreak and the problem of environmental pollution.

Production and consumption

Animal meat is the most important source of animal protein in the diet of the Malaysian population (Kaur, 2010). Production of livestock in Malaysia has shown an increasing trend from 1960 to 2014 (Table 2). In 1960, the livestock industry was dominated by pork production. In 2014, the poultry production has grown very significantly and exceeded pork production. It has enabled Malaysia to be self-sufficient in poultry meat and eggs since the 1990s. This favorable poultry development is caused by the introduction and adoption of foreign hybrid birds, financial support facilities, enhanced food nutrition, better feed

conversion rates, shorter maturity periods and a reduction in mortality rates (Mohamed, 2007). For livestock ruminants such as beef and mutton, the production has increased steadily. The highest beef and mutton production changes are in 2000 to 2010 with the percentages of 158% and 161% respectively. This positive growth was largely contributed by the rearing of cattle and goats in plantations and feedlot cattle rearing by the private sector. Moreover, it is also affected by the share of considerable expense for livestock, especially the ruminant sub-sector in the Ninth Malaysia Plan (9MP). The government allocated RM519.8 million of the total agriculture development budgets to the livestock sector for the 9MP (Mohamed, 2007). The execution was carried out by encouraging the production and development of local beef, by giving loans to entrepreneurs who are interested in cattle farming.

Table 2. The production of beef, mutton, pork and poultry in Peninsular Malaysia, 1960 - 2014

Year	Beef		Mutton		Pork		Poultry	
	mt	**% changes**	**mt**	**% changes**	**mt**	**% changes**	**mt**	**% changes**
1960	11,570	-	1,280	-	38,450	-	21,273	-
1970	12,980	12.19	1,030	-19.53	59,840	55. 63	61,000	186.75
1980	15,518	19.55	900	-12.62	122,584	104.85	114,500	87.70
1990	12,932	-16.66	657	-27.00	197,301	60.95	348,500	204.37
2000	17,501	35.33	888	35.16	159,818	-19.00	714,320	104.97
2010	45,217	158.37	2,315	160.70	188,370	17.87	1,180,290	65.23
2011	47,472	4.99	3,004	29.76	166,959	-11.37	1,173,810	-0.55
2012	49,780	4.86	4,667	55.36	169,572	1.57	1,252,060	6.67
2013	50,160	0.76	4,208	-9.84	168,151	-0.84	1,328,330	6.09
2014	50,615	0.91	4,456	5.89	165,969	-1.30	1,362,130	2.54

Source: Mohamed (2014); Department of Veterinary Services, Malaysia (2015)

In terms of meat consumption, it shows an increasing pattern (Table 3), and it is expected to increase at the rate of 2.4% annually. The demand is projected to increase from 1.4 million MT in 2010 to 1.8 million MT in 2020 (National Agro-food Policy 2011-2020). In the 2000s, mutton consumption indicates the most significant changes compared to other meats, an increase of 22.3% in 2014. This trend can also be seen in the per capita consumption (Table 4). Before 2010, the per capita consumption of mutton remained stagnant at below one kg per annum. This is due to the misconception that mutton is high in cholesterol and saturated fats (Kaur, 2010). However, in 2014, the per capita consumption has increased to more than one kilogram per person. This shows that, Malaysian people began to change their perception and started to consume mutton as part of their daily diet.

Table 3. The consumption of beef, mutton, pork and poultry in Peninsular Malaysia, 1960 - 2014

Year	**Beef**		**Mutton**		**Pork**		**Poultry**	
	mt	% changes	mt	% changes	mt	% changes	mt	% changes
1960	14,030	-	3,380	-	30,170	-	23,636	-
1970	14,935	6.45	4,147	22.69	59,760	98.08	61,080	158.42
1980	20,479	37.12	6,607	59.32	122,808	105.50	119,200	95.15
1990	50,874	148.42	7,283	10.23	150,093	22.22	296,327	148.60
2000	99,611	95.80	16,700	129.30	144,200	-3.93	948,500	220.09

2010	145,412	45.98	19,054	14.10	202,681	40.56	1,104,570	16.45
2011	158,111	8.73	19,042	-0.06	180,037	-11.17	1,102,210	-0.21
2012	168,192	6.38	23,239	22.04	178,824	-0.67	1,182,990	7.33
2013	184,202	9.52	27,299	17.47	178,444	-0.21	1,254,240	6.02
2014	190,201	3.26	33,390	22.31	181,880	1.93	1,286,260	2.55

Source: Mohamed (2014); Department of Veterinary Services, Malaysia (2015)

The consumption of beef, mutton and poultry meat continues to rise as people have higher purchasing power. For example, the per capita consumption of beef has increased from 3.65 kg in 1993 to 7.73 kg in 2013. 0.48 kg to 1.38 kg for mutton and 28.06 kg to 53.35 kg for poultry. However, the consumption of pork has declined from 10.19 kg in 1993 to 7.54 kg in 2014 (Table 4). The increase is due to the lower price of imported beef affiliated with the higher per capita income which has influenced the household demand for beef (Mohamed, 2007).

Table 4. The per capita consumption of meat in Peninsular Malaysia (kg), 1993-2013

Product	1993	2003	2010	2011	2012	2013	2014
Beef	3.65	5.06	6.42	6.83	7.15	7.73	7.89
Mutton	0.48	0.75	0.82	0.82	0.99	1.15	1.38
Pork	10.19	7.83	8.87	8.63	7.6	7.49	7.54
Poultry	28.06	37.7	48.75	49.36	44.4	52.63	53.35
All meats	42.38	51.34	64.86	65.64	60.14	69	70.16

Source: Mohamed (2014); Department of Veterinary Services, Malaysia (2015)

Livestock trade

The export of Malaysia's livestock is low compared with the total imports. In 2007, import of beef was around 1,395.2 metric tons, swine (307.7 metric tons) and poultry meat (6,438.2 metric tons) (Table 5). Malaysia has achieved its level of self-sufficiency for poultry meat and is able to export it to its traditional market, Singapore. Although Malaysia has achieved sufficiency level in poultry, there are still importations of poultry. This importation is normally in the form of day-old chicks or parent stocks for breeding purposes (Mohamed, 2007).

Table 5. Export of livestock products in Peninsular Malaysia (metric tons), 2003-2007

Livestock Products	2003	2004	2005	2006	2007
Beef	1,302.0	1,594.0	1,496.6	1,568.1	1,395.2
Mutton	-	11.1	33.6	18.1	-
Swine Meat	56.6	170.7	212.1	2,091.7	307.7
Poultry Meat (Processed)	14,135.4	10,264.0	4,321.6	5,122.1	6,438.2

Source: Department of Veterinary Services, Malaysia

However, in terms of beef and mutton, Malaysia relies heavily on imports (Table 6). In 2003, Malaysia imported 85,277.0 MT of beef and increased to 102,304.0 MT in 2007. Beef is the most imported meat compared to other meats. It is due to its cheaper price compared to the local one and also a high demand by Malaysian consumers. The number of imported mutton has also increased from 10,707.0 MT in 2003 to 16,303.4 MT in 2007.

Table 6. Import of livestock products in Peninsular Malaysia (metric tonnes), 2003-2007

Livestock Products	2003	2004	2005	2006	2007
Beef	85,277.0	116,944.0	113,797.0	105,786.3	102,304.0
Mutton	10,707.0	13,365.0	13,922.7	15,094.5	16,303.4
Swine Meat	1,368.9	1,819.2	2,359.7	3,087.9	3,139.3
Poultry Meat (Processed)	20,654.5	2,163.0	3,583.2	2,262.8	17,528.7

Source: Department of Veterinary Services, Malaysia

Research and development

The objective of the livestock research and development (R&D) program is to support the production of quality animals and healthy food products at competitive prices. As the land resource becomes increasingly scarce due to rapid industrialization, R&D effort is geared towards optimizing land use, thus accommodating a harmonious relationship with Nature. For ruminant animals, integrated production system with plantation crops is recommended for optimal resource utilization. For example, Brakmas cattle – a composite breed developed by MARDI from Kedah-Kelantan cattle and Brahman bull imported from the United States of America, is well adapted in the plantation environment.

Among the government agencies and higher-education institutions in Malaysia that are involved in livestock R & D are MARDI (production research), Department of Veterinary Services through Veterinary Research Institute (disease research), Universiti Putra Malaysia (production and disease research) and Universiti Malaya (production research). R&D in the field of livestock includes animal breeding, feed nutrition, animal health, livestock production and waste management. R&D is expected to generate new technologies that can increase farm productivity, higher quality breed, healthy animals and efficient production system. However, the technology developed must be suitable and affordable to farmers. The use of technology applications can produce sustainable modern livestock industry.

Policies implemented

The a industry development closely interlinked with advances in technology and policy implementation. Various policies and allocation by government were undertaken to improve the productivity and competitiveness of the livestock sector in Malaysia. Since the First Malaysia Plan (1MP) (1966-1970) until the Tenth Malaysia Plan (10MP) (2011-2015), research and development policies have always been one of the main agendas. In this regard, the Department of Veterinary Services is responsible for all aspects of animal health and production while MARDI is given the mandate for research. In MARDI, researchers were focusing on the development of new livestock breeds and advanced reproductive

technologies for genetic enhancement, intensive and semi-intensive environmental friendly production systems and formulate new animal feeds from local agro-industrial products.

In order to increase efficiency in livestock production and to reduce the dependency on imports, research and development on animal breeding and nutrition is strengthened, particularly for the local cattle and goat breeds (ruminant livestock) and the use of local raw materials in non-ruminant feed formulation (National Agro-food Policy 2011-2020). To increase production, researches on ruminant breeding are conducted that include restructuring the breeding system, the development nucleus herd, the integration production system and reproduction animal (breed lot) system for a multiplier herd. Productive ruminant population was also enhanced through more impressive breeding services such as the use of reproductive biotechnology and the active involvement of the private sector. For non-ruminants, breeding activities will continue to be strengthened by encouraging the use of modern technologies and in compliance with good farming practices such as closed house and automation. In addition, use of effective microorganisms (EM) products will be promoted as natural biological control agents.

The government also emphasized on the balance of domestic and imported supplies. To encourage industry growth and meet consumer demand, and industrial processing, importation of animal products such as meat and dairy will be adjusted in accordance with trading procedures approved by the World Trade Organization (WTO). Basically, efforts to liberalize the agricultural sector were intensified since 1990s. The establishment of the WTO and the rapid liberalization of agricultural trade opened the agricultural industry to increase competition and new market opportunities (Mohamed, 2014; Loh, 2002). The country is capable to specialize and be competitive in the production of certain livestock, mainly in poultry and pig subsectors. Moreover, to strengthen the marketing of livestock, distribution and auction centers will be established while the communications technology plays a role as a source of market information.

Way forward/future direction

Livestock is an important sector due to its strategic nature in ensuring national food security. The importance of livestock industry was highlighted in the Malaysian Economic Transformation Programme. Under the agriculture transformation program, five projects or known as Entry Point Projects (EPP) are designated to the livestock industry. It consists of expanding the production of Swiftlet nests, rearing cattle in oil palm estates, strengthening current anchor companies in cattle feedlots, partnering with a large foreign Dairy Company to establish dairy clusters in Malaysia, establishing a leadership position in regional breeding services and investing in a foreign cattle farming company. This EPPs are expected to increase Malaysia's Gross National Income (GNI) of RM28.9 billion by 2020.

In order to increase the productivity of agriculture, regional breeding services will be established. Malaysia will be the first in the region to establish the Centre for Marker Discovery and Validation (CMDV) to lead seed and brood stock research. It will be designed and built to support high processing screening of genetic materials to discover molecular markers for desired traits. The domestic agriculture sector would benefit through this CMDV by focusing on research and development (R&D) resources. It can serve the regional market as well as position Malaysia to capture the high value adds segment of regional agriculture. Moreover, scaling-up will be pursued by transforming entrepreneurs of beef cattle and sheep from small-scale farms to the medium and large-scale agribusinesses which is more viable, competitive and sustainable. It will be supported by modern infrastructure and central management. Innovation and technology adoption will be intensified to develop higher value,

differentiated and customised products such as bird's nest-based products. In 2020, Malaysia is targeted to capture 40% of the Swiftlet nest's global market with the production increase from 290 MT to 870 MT and also increased domestic processing into downstream products.

The future directions of livestock industries have been presented comprehensively in the National Agro-food Policy (NAP) (2011-2020). Some of the livestock strategies outlined in the NAP are:

- improve the efficiency of the livestock industry
- sustain the competitiveness of non-ruminant livestock industry
- increase the production of animal feed
- strengthening the effectiveness of disease control and expand the practice of slaughtering and processing secure
- develop the other livestock industry
- balancing domestic supply and imports

CONCLUSION

Livestock industry is an important sector in Malaysia. It ensures that the protein supply in the country is sufficient. Thus, some regulations and incentives have been introduced to support the development of this sector which is still in need of improvement. Malaysia is able to achieve the prescribed level of self sufficiency level and no longer relies on the importation of live animals, meat or animal feeds.

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