

SWINE INDUSTRY PROFILE OF EASTERN SHAN STATE IN MYANMAR

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Country Profile

Myanmar is the largest country in the mainland of South-East Asia. It is located between Latitude 9° 28' and 28° 29' North and Longitude 92° 10' and 101° 10' East with a total land area of 676,552 square kilometers share borders with Bangladesh, India, People's Republic of China, Lao PDR, and Thailand. A coastline of 1 900 km extends along the Bay of Bengal and the Andaman Sea which borders an estimated 500 000 ha of coastal mangrove swamp and an extensive delta region fed by the Ayeyarwady and Sittoung Rivers.

The southern extension of the country is composed of a narrow coastal strip backed by mountains. The central region of the country is known as the 'dry zone'. It is characterized by a semi-arid climate with a lengthy dry season and is enclosed to the north, east and west by highlands and mountains towards the Indochinese border in the north. These surrounding mountains and upland areas receive higher precipitation levels than the central lowlands and are still largely covered with teak and hardwood forest. Shan State, a major plateau region in the east of the country offers suitable conditions for agriculture and has been more extensively cleared for that purpose (Figure 1).



Figure 1

Agriculture Sector

Myanmar is an agro-based country and agriculture sector forms the backbone of country economy. About 70% of the people are live in rural area, and they rely on agriculture integrated with livestock farming. According to 2016-2017 GDP, livestock & Fishery sector contributed 8.2% to national GDP. Therefore, the government has given high priority to agriculture development since it is the main driver of economic development for the majority of the people.

Table 1. National Production, Consumption and Investment
(At 2005-2006 Constant Producers' Prices for 2007-2009)
(At 2010-2011 Constant Producers' Prices for 2010-2011)

(Value Kyats in Billion)

SN	Particular	2014-2015		2015-2016		2016-2017	
		value	ratio	value	ratio	value	ratio
1	GOODS	31427.9	59.54	33330.8	58.85	34822.7	59.96
	1 Agriculture (Crop)	11113.0	21.05	11357.4	20.05	11460.2	19.2
	2 Livestock & Fisheries	4529.3	8.58	4820.3	8.51	4894.4	8.2
	3 Forestry	126.4	0.24	128.1	0.23	45.2	0.35
2	SERVICES	11666.9	22.10	13018.4	22.99	13870.3	23.24
3	TRADE	9690.3	18.36	10286.2	18.16	10985.7	18.41
4	GDP (1+2+3)	52785.2	100.0	56635.4	100.0	59678.7	100.0

Under the guidance of Ministry of Agriculture, Livestock and Irrigation, Livestock Breeding and Veterinary Department (LBVD) undertake to develop the whole national livestock sector. Leading by Director General, LBVD perform to improve livestock and livestock products for the requirement of the domestic consumption and export surplus through improved animal health care.

LBVD is organized by 15 state and regional veterinary offices including Nay Pyi Taw Council. Under state and regional veterinary offices, there are 76 district and 281 township veterinary offices. Moreover, LBVD provide 8 animal disease diagnostic and vaccine production laboratory, two liquid nitrogen plants and two semen producing centers.

In Myanmar, Livestock animals are geographically distributed in accordance with locally available feedstuff. According to 2016-2017 LBVD data, Myanmar had an estimated 17.035 million cattle, 3.749 million buffaloes, 9.543 million sheep & goats, 17.648 million pigs, 318.957 million poultry, 25.382 million ducks and 1.577 million goose/turkeys.

Count in Million

Sr No.	Particular	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
1	Cattle	14.993	15.481	15.993	16.506	17.035
2	Buffalo	3.318	3.422	3.532	3.638	3.749
3	Sheep/Goat	5.981	6.778	7.646	8.586	9.543
4	Pig	12.567	13.761	15.056	16.341	17.648
5	Chicken	217.1115	241.861	169.286	293.602	318.957
6	Duck	18.332	20.002	21.805	23.572	25.382
7	Goose/Turkey	2.431	2.715	3.061	2.280	1.577

Table-2 Livestock animal population in Myanmar

Swine industry profile in Eastern Shan State

Shan state is located in the eastern part of Myanmar. It is divided into three parts, southern Shan state, northern Shan state and eastern Shan state. Eastern Shan state is organized by 4 districts and 11 townships, and share border with People's Republic of China, Lao PDR, and Thailand. This favor to local livestock farmers to rear more to be able to participate in border trade. On the other hand, proper weather condition and available agriculture by-product also provide to increase livestock farming in eastern Shan state. As shown in table-3, livestock animal population in Shan state is about 16.945 Lakh in Cattle, 9.083 Lakh in Buffalo, 1.279 Lakh in Sheep/Goat, 25.848 Lakh in Pig, 358.913 Lakh in Chicken, 5.201 Lakh in Duck and 0.965 Lakh in Geese/ Turkey. Compare with other state and region, Shan state stands second place in Pig population. However, more than 90 percent of the total pig production is small in scale and their productivity is often far below potential levels. Most of small

scale pig production are located in eastern Shan state rearing with indigenous pig breeds.

Count in Lakh

Sr No	State/Region	Cattle	Buffalo	Sheep/Goat	Pig	Chicken	Duck	Geese/Turkey
1	Naypyitaw	2.546	0.711	0.185	3.497	43.822	1.129	0.054
2	Kachin	3.846	2.807	0.714	10.779	91.045	3.071	0.633
3	Kayah	1.001	0.375	0.038	1.537	28.906	0.250	0.086
4	Kayin	3.954	1.063	1.149	5.173	65.274	4.337	0.615
5	Chin	1.913	0.560	1.221	4.736	70.012	0.450	0.114
6	Sagaing	26.929	5.276	7.498	15.087	241.908	3.802	0.802
7	Thaninthary	1.743	1.717	0.420	2.652	55.482	6.588	0.304
8	Bago	16.222	3.453	0.850	12.753	458.293	110.304	1.564
9	Magwe	31.160	1.909	52.973	42.658	529.457	4.404	0.198
10	Mandalay	24.738	0.740	20.623	10.107	292.157	7.189	0.679
11	Mon	5.535	1.012	1.451	5.323	133.421	20.991	0.939
12	Rakhaing	14.051	4.628	4.549	4.337	116.102	4.523	1.865
13	Yangon	6.936	1.700	1.245	13.689	480.390	39.618	2.781
14	Shan	16.945	9.083	1.279	25.848	358.913	5.201	0.965
15	Ayeyarwady	12.830	2.458	1.232	18.302	224.381	41.957	4.174

Table-3 Livestock animal population of State and Region (2016-2017)

In eastern Shan state, the production and consumption of pork has significantly risen year by year. The marketing system for pigs, village pig farmers sell their pigs to other villages or districts through pig buyer. Women and children in this area remain to play an active role in pig production. However, local farmers also recognize the importance of swine as a major source of family income; as a supplementary source of funds for particular purposes; or as a ‘savings bank’.

In this communities, the pig farming is dominated by indigenous breeds kept primarily under traditional production and management systems. Under many constraints, difficulty to grow their pig rearing because of poor in genetic resources, breeding technologies and farming practices. Generally in small-scale farm, two to four pigs are fattened during a period of 8 to 12 months to reach the marketable weight. Local breeds are used and sometimes even crossbreed, depending on the breeds accessible to the hog raisers. If we provide and support of their actual requirements, they will increase and develop their production and per income.

In eastern Shan state, local breed, Akhar pig is popular for local market. Akhar pig is a kind of small black pig with poor growth rate. However, local farmers who live in eastern Shan state in Myanmar want to rear these Akhar pig because of its good meat tastes and high local market demand. In eastern Shan state about 50% of local pork consumption is covered by Akhar pig production. Moreover, Akhar black pigs are not only good meat taste and high market demand but also can feed banana shopped stem, mixing with rice bran to get reasonable production against local limitation.



Akhar black pig

We studied the production of Akhar pigs on 20 numbers divided into 2 groups for 8 weeks provided with 2 different kinds of feed. One group was provided with the usual feedstuff utilized by local farmers as described in above. Another group was provided the modified feedstuff by making fermentation on usual feedstuff. In these studied, we observed the group of Akhar pig provided with modified feedstuff showed higher in body weight as well as increase in appetite than the usual feedstuff provided group. But, the meat taste and local market demand were not different between these two groups.



Local feedstuff supply group modified feedstuff supply group

Modification of local pig feedstuff or Fermentation of Banana stem

Banana stem were chopped into small pieces, and mixed using 4.5% sugar, 0.5% salt, and then put into plastic bag. In the plastic bag, the mixed feedstuff was pressed thoroughly so that the air is out and placed in room temperature covered with the lid for one week.



Banana stem chopping and Mixing with 4.5% sugar and 0.5% salt



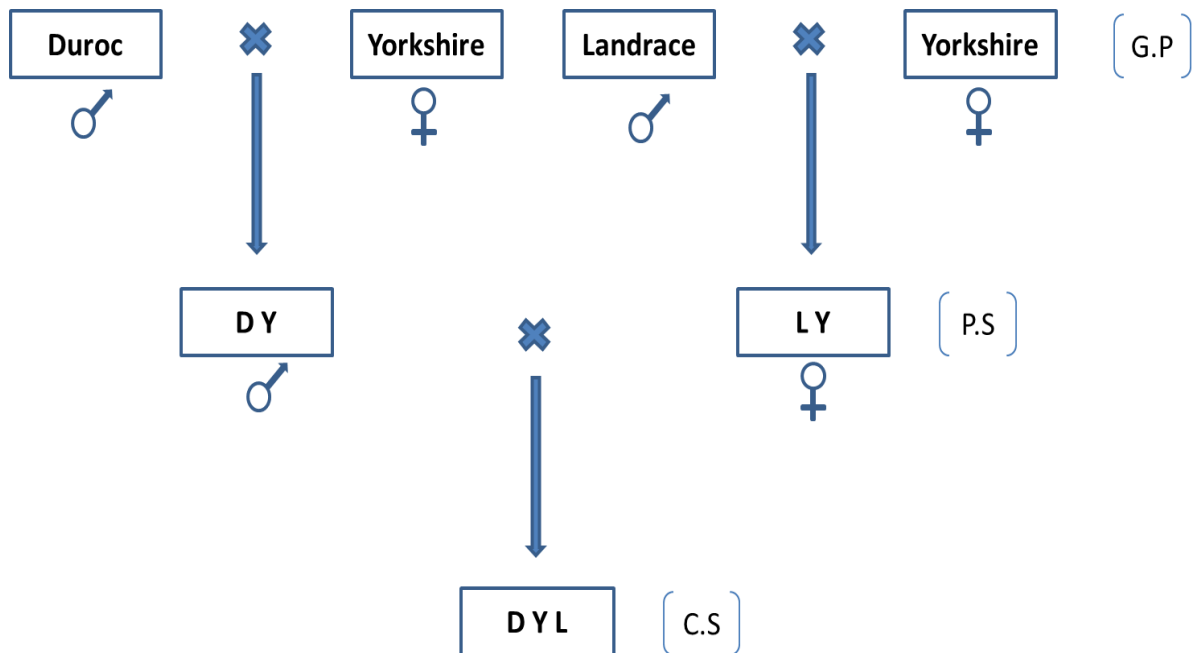
Fermented feedstuff

Swine Artificial Insemination Practice in Eastern Shan State

We introduced artificial insemination (AI) practice in commercial swine industry of Eastern Shan State since 2012 as a means of maximizing the effect of genetic improvement and reducing the cost of reproduction. The use of AI in eastern Shan state, private pig farm has been increased, and as much as 100% of all breeding sows were bred by AI. They used Duroc for male line and

Landrace-Yorkshire for female line to get the best productivity. In eastern Shan state, however, there are a few commercial pig farms. They are located in Kyaingtong District and Tachileik District. These commercial pig farms supply all the breeding sows and piglets to local demand.

DYL Breeding Programme



D = Duroc
Y = Yorkshire
L = Landrace

Semen Processing Practice and Artificial Insemination

Using dummy sow, semen was collected once a week from selected boars. Under the microscope, one drop of semen was checked to identify sperm morphology and motility, and then mixed with diluted extender to get the ratio of 1:5-10 times dilution. 90 ml of diluted semen was packaged for one dose and stored in refrigerator.

For estrus detection, one teaser male was used twice a day (morning and afternoon) to recognize estrus sow. After estrus sow has been recognized by teaser male, we confirmed standing heat before doing AI to receive good conception rate. Finally, AI was done by 12 hours interval using fresh semen.

Cross Border Pig Supply Chain:

Relationship b/t Actors, Kyaingtong

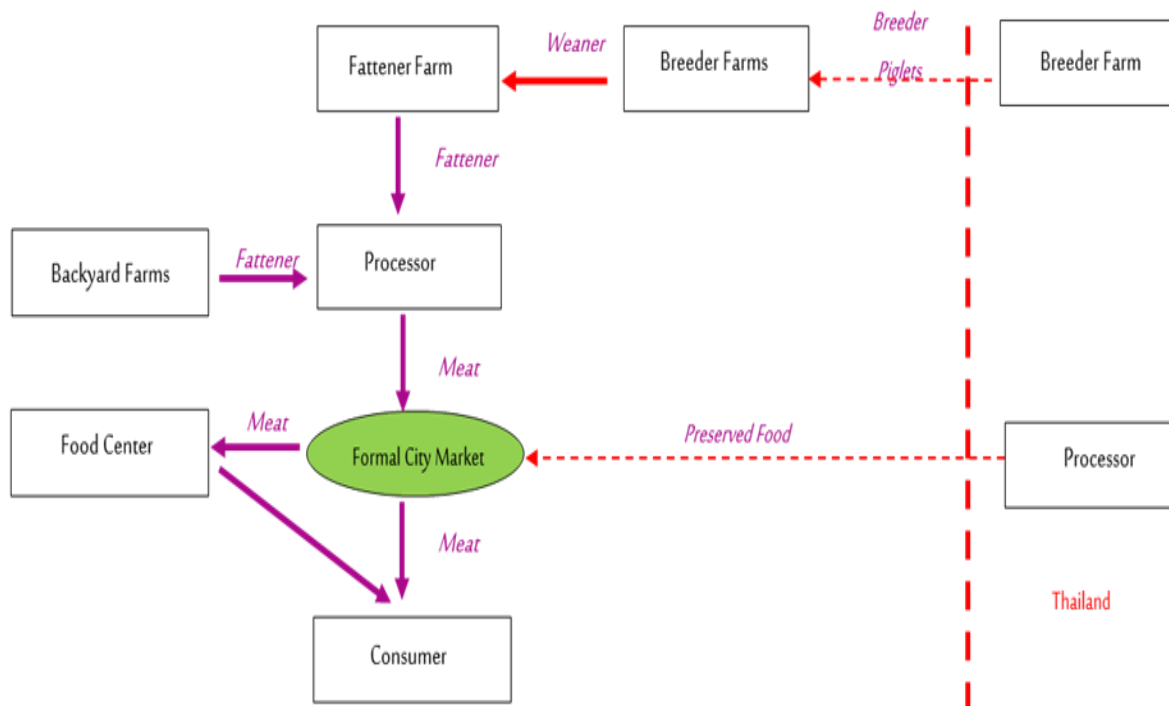


Figure 9. Cross Border Pig Supply Chain (Thailand)

Modified from Sein Win, 2011

References

Livestock Breeding and Veterinary Data (2016)

Sein Win (2011): Myanmar Swine Industry Profile. *Swine Industry Profile of Selected South East ASEAN Country: 22-53.*