
**AN ANALYSIS PRODUCTION AND MARKETING CHANNEL OF BAN PIG IN
MOUNTAINOUS NORTHERN VIETNAM**

Nguyen Van Phuong¹, Tran Huu Cuong¹, Dang Thi Kim Hoa¹ and Dinh Ngoc Tu²
Faculty of Accounting and Business Management, Vietnam National University of Agriculture
Gia Lam district police department, Hanoi, Vietnam

ABSTRACT

The study aim to analyze production and marketing channels of indigenous pig from the producing areas in the mountainous Northern Vietnam. The results found that indigenous pig market system is developing in term of production, marketing and consumption aspects. The demand of Indigenous pig is increasing day by day from the mountainous areas to delta areas, especially in the big cities. Indigenous pig was produced in the mountainous areas that is favored by customers due to its original breed and traceability. From the production side, it is developing of indigenous pig with in both small and large scale farm in mountainous and delta areas. The Ban pig market still depends much on the assemblers who are the main collectors and play an important role in delivering pigs from the producers to the restaurants.

Keywords: Indigenous pig, pig marketing channel, pig production, Vietnam

1. INTRODUCTION

In Vietnam, as living standards have increase, there is a growing demand for local livestock as specialty food by consumers' preference. This growth is predicted to increase in the coming years. However, according to Vietnam National Report on Animal Genetic Resource, 2012, the population of indigenous animals is decreasing (MARD, 2015). Indigenous pigs are exemplified from this situation. Raising indigenous pigs bring lower income than cross-breed pigs due to lower productivity and long fattening period. Indigenous pigs are primarily maintained by poor households (Phuong et al, 2014).

In the mountainous Northern areas of Vietnam, local pig is a common indigenous pig breeds kept under smallholder conditions. Genetics of exotic breeds have been crossed into normal pigs over the last couple of years. On the other side, Ban pig is much less influenced by exotic genetic improvement. Ban pig is even in danger to be extinct as the public sector and extension services focus on the promotion of "modern" breeds. Although production systems of indigenous pigs are increasingly better understood (Lemke et al., 2006), successful market integration is required to sustain the long-term.

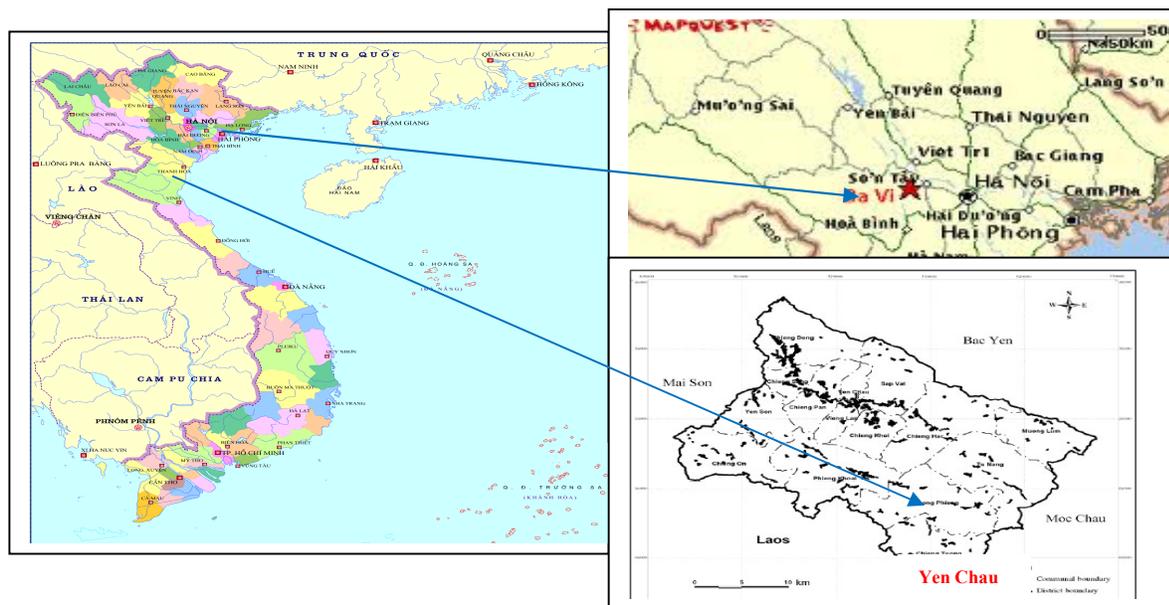
Son La province was selected for this survey. In the mountainous province, indigenous pigs called Ban pigs (Ban mean "a mountainous village") have been mainly raised and considered

as traditional animals by many Thai households in villages far from town for long time. Ban pigs from remote areas in the province receive a significant price premium in Hanoi, including restaurants. The objective of this study is to analyze production and marketing channels of indigenous pig from the producing areas in the mountainous Northern Vietnam.

2. RESEARCH METHODOLOGIES

2.1. Selection of study areas

The two research areas are representative for the Northern mountainous areas in Vietnam as Yen Chau district-Son La and Ba Vi district – Ha Noi.



Son La province is located in the mountainous zone of Northern Vietnam, with Son La town as a main town 300 km away from Ha Noi capital. This province is home of many types of ethnicity in which Thai people occupied over 55%, Kinh people 17%, and H'mong 12% of the total population of the province (Statistical Year Book, Son La province, 2017).

In Hanoi city, Ba Vi district is attractions and cross-check the information with the audience is the large and medium scale farms. Ba Vi is located closer to the Hanoi market (larger city compared to Son La market), distance market regulate the pork market is a hypothetical study that we are conducting proof. Key socio-economic indicators in Son Lan province and Yen Chau district are presented in Table 2.1, 2.2 and 2.3.

Table 2.1: Main characteristics of Son La province

Characteristics	Son La province
Area (Km2)	14,125
Population	1,080,641
Number of communes	188
Average density (inhabitant/km2: 2009)	73
Ethnic group	12

Source: Statistical Year Book, Son La province, 2017

Table 2.2: General information of Yen Chau district

Characteristics	Yen Chau district
Area (Km2)	859
Number of communes	15
Average density (inhabitant/km2: 2009)	79
Ethnic group	5

Source: Statistical Year Book, Son La province, 2017

Population of Yen Chau:

Five ethnic groups in Yen Chau: Kinh (19.5%), Thai (54.1%), Xinhmun (12%), H'Mong (14.3%), Khomu (0.1%). Minorities account for > 80% of total district population

Table 2.3: Population of Yen Chau district

	2008	2009	2010	2011	2012
Total population	68,071	69,485	70,500	72,433	73,750
Poverty rate	23.5	26.0	41.3	31.2	28.5
Population growth rate (%)	1.40	1.35	1.33	1.33	1.30

Source: Statistical Year Book, Son La province, 2017

Pig production plays a crucial role in the economic development program implemented by the province. The number of produced pigs occupies a large share of the total number of animals in Son La province (Table 2.4 and 2.5). However pig production do not supply enough for the demand for pork of local people in the whole province. Every year, a different number of pigs from the lowlands is imported to almost all districts. Pig production within the province is primarily based on small-scale with a small average number of pigs per household.

Table 2.4. Main livestocks in Vietnam, Son La and Ha Noi province in 2012

Livestock	Whole country	Son La province	Ha Noi province
Buffaloes (heads)	2,627,800	168,500	24,200
Cattles (heads)	5,194,200	196,500	141,700
Pigs (heads)	26,494,000	535,300	1,377,100
Living weight of pig (tons)	3,160,000	63,846	164,250
Poultry (heads)	308,461,000	4,604,000	17,996,000
Slaughtered poultry (tons)	729,000	10,881	42,531

Source: The Statistical Year Book of Vietnam, 2017

Table 2.5: Animal production: Yen Chau:

Animal	head		
	2013	2015	2017
Buffalos	11,297	13,740	14,510
Cow	10,510	10,656	11,858
Pig	24,833	21,000	24,208
Horse	975	500	450
Goat	4,647	9,857	9,975
<i>Chicken</i>	<i>205,408</i>	<i>225,169</i>	<i>244,019</i>
Duck	14,083	15,694	6,700

Source: Statistical Year Book, Son La province, 2017

2.2. Data collection

2.2.1 Secondary data

Secondary data were collected from previous studies, statistic census from the Statistic offices, the Department of Agriculture and Rural Development. Secondary data include information about socio-economic condition, situations of pig production, information about consumption of pork in the markets in Son La province.

2.2.2 Primary data

- Group discussion

To achieve the research objectives, PRA is the primary method used to collect information about production and consumption of Ban Pig. Chain assessment toolkit used as a key to understand the sequence composition and the characteristics of the factors in the chain, flow of information, payment and the power of the factors, estimated the quantity of pigs per channel, and determined the prices in the market. Moreover, focusing on group discussions and in-depth interviews are two ways to find a deeper understanding of the value chain, the benefits of participating factors. In-depth interview methods are in-depth discussion of the problems with each chain factors to further evaluation of the pig market as well as development trend of this product line.

-Household interview

Data from farm households were gathered by using structured questionnaires. It was pretested with two farmers in each village. Since this study focused on pig production and pig trading, the questionnaire was designed in detail in collecting data related to issues.

The question covers different aspects including pig production situation of households and marketing activities. In addition, household characteristics were also collected. In part of marketing activities, farmers who answered to have referred trader were also asked to evaluate the nature of relationship based on possible statement drawn from PRA interviews. Interviews with farmers were usually held at farmer's house with the household header. Vietnamese language was used in most of interviews. In cases interviewees could not speak Vietnamese language; Thai people would be required to translate into Vietnamese.

2.3. Data analysis

For addressing research objectives, the method of data-analysis used to base on a qualitative analysis of the space market by gathering information from the PRA, MRA, in-depth interviews and group discussions. In this study, the method of analysis and value chain sequence is the basic method used to describe the operation of the chain, the chain factors. At the same time, we collected many scientific research reports available on the pigs in recent years to clarify the

factors affecting the prices, price volatility, as well as more specifically described inter-provincial market and large urban market have consumption of Ban Pig.



PRA at Co Chia village- producer group



PRA at Co Chia village- consumer group



In-depth interview at Cho Long village



Indepth interview

3. RESULTS

3.1. Characteristics of marketing actors for Indigenous pigs

3.1.1. Small scale production

- Characteristics of small producers

+ Wealth of pig owners

The Table 3.6 showed that almost household keeping pigs and indigenous pigs are better-off. However, there are quite high proportion of household keeping pigs are moderate (32% of household keeping only indigenous pigs).

Table 3.6: Wealth of indigenous pig owners (small producers)

Wealth category	HH keeping pig (n=107)	HH keeping only indigenous pigs (n=97)	HH not keeping pig (n=46)
-----------------	---------------------------	----------------------------------------------	------------------------------

Better-off	79%	67%	59%
Moderately poor	20%	32%	41%
Very poor	1%	1%	-

Source:survey, 2017

+ Education of indigenous pig owners

The education level of household members in terms of keeping pigs in both sites is shown in Table 3.7. In general, the average education households with, without pigs are higher than household not keeping any pigs. However, the education of household heads and all members are not very high.

Table: 3.7 Education level of small scale producers

Summary for Level of Education	HH keeping pig	HH keeping only indigenous pigs	HH not keeping pig
	Ave. (s.d.)	Ave. (s.d.)	Ave. (s.d.)
Household Head	6.39(7.22)	6.38(7.44)	5.08(3.28)
All members > 12 yrs	6.35(3.63)	6.31(3.63)	5.71(3.93)

Source: survey 2017

+ Household income

Contribution of different sources to the total annual income of households keeping local pigs is presented in Table 3.8. In Son La, the total annual household income of pig owners was higher than the non-pig owners. The average income from livestock of households rearing pigs and indigenous pigs was higher than household not keeping any pigs in the site. Following is the source from off-farm income which is from the remittance, salary, craft jobs, or trading

Table 3.8 Income contribution to total annual income of households keeping indigenous pigs in USD

Species – Pig (Income in log base 10)	HH keeping pigs	HH keeping only indigenous pigs	HH not keeping pigs
Income category	(n = 107)	(n = 97)	(n = 46)

Son La		Ave (s.d.)	Ave (s.d.)	Ave (s.d.)
	Livestock income	1.94(1.18)	1.92(1.19)	0.02(1.62)
	Farm income (not incl. livestock)	2.97(0.91)	3.01(0.86)	2.98(0.58)
	Off-farm income (incl. remittances)	0.73(1.33)	0.75(1.35)	0.29(0.95)
	Total HH income	3.2(0.77)	3.22(0.74)	3.03(0.59)

Source: survey, 2017

-Characteristics of small production

Women were mainly responsible for raising ban pigs. Housewives spent about 70% their time, however men invest 30% time for pigs. The activities women usually had to take response were collecting vegetables in field, milpa or forest, then cooking bran, feeding and cleaning pigsty. While men help to bring vegetable or banana trees to home, collect firewood and chop vegetables. Totally, a family spends about 2 hours per day for pigs. Pigs are impounded in primitive sty.

In villages, farmers applied traditional technique – extensive technique to raise ban pigs

Breeds: Ban pigs generations have been generated through raising local sows in each household. A sow lays 5 to 6 piglets with survivor ratio was 80%. Therefore, farmers re-seeded pigs for following furrows for their families. There was a small amount of sows are provided for another households in communes (10%). The indigenous pig gene was cross-breed (combined between ban pig and others, such as MongCai breeds or hybrid sows.



Ban pig (1st generation- F1) (small ears)



Piglet of ban pig sow and hybrid pigs

Food: With indigenous gene, food and technique of raising were important factors to produce special pork. Bran for pigs was made from natural materials and left-over food of families. If farmers fed pigs by industrial foods, fat ratio would really high in meat and buyers or slaughters bargain price low as normal pigs.



Vegetables collecting from milpa are used for

Bran are made from maize, rice, vegetables (main food)

According to farmers in the study areas, if they included family labors, they gained loss from pigs and ban pig. However, if they included family labor, the wage from pig raising would be higher than others. That was economic motivation for farmers to keep ban pigs for generations (29,000 VND/kg). Another importance for ban pig preservation was food. The food was made from nature and left-over family food. So that it was not essential to estimate but it was really important to produce high quality pork.

Characteristics of households raising ban pig in Co Chia and Cho Long village, Yen Son Commune, Yen Chau District, Son La Province:

Co Chia village has totally 156 households. Income generating activities for livelihood are growing (maize, rice, cassava, bamboo shoots); raising (goats, cows, buffaloes, pigs, poultry). All of households in Co Chia have been raising hybrid pigs but only 30 households own both hybrid pig and ban pig. Each family has average 5 to 7 pigs per year.



In general, there are limited families have ban pig: 30/153 households in Co Chia (10 better-off and 20 medium households), 11/165 households in Cho Long (there were no rich households).



All ban pig breeds were provided by some households in the villages, such as Co Chia (2 households specialize selling pig breeding). In Cho Long village, people face difficulty to buy the breeds due to no one sells. Household heads in Cho Long and Co Chia were minority, such as: Thai, Dao, Singmun.

3.1.2. Large scale production

Raising ban pigs at farms is larger scale than at households. The large scale production includes two kind of scale: small integrated farms and large integrated farms. Each farm had different scale decided by their diverse activities (max=600 heads, min=40 heads). The purposes of raising indigenous pigs of both owners are to support other business. Pigs feeding is one of essential activity and contribute directly or indirectly to net profit of farm owners. Farm owners diverse pig raising and other business activities. For small integrated farms in Son La province, the owners have pigs in his garden and also run business and selling food stuff in Yen Chau town, while other owner in Hanoi raising indigenous pigs and other animals such as ostrich, cows, chicken and porcupine. For large integrated farm in Hanoi city, the owner consider pigs from his

farm are really importance because pork are used of his restaurants chains in eco-tourism activities. Ban pork became value and special food for the tourists.

Small integrated farm in Son La province



Raising pigs+ selling food stuff 30-40 pig head/year , land: 300 m2Traditional raising



50 pigs/year are selling by informal contract to relatives

Raising pigs with other animal to increase income

Traditional raising method

Large integrated farm in Hanoi:



40 ha of land are invested for growing tree, pigsty are build and remaining area for searching food.



600 pig head/year are consumed by specialize raising method, however, natural food are always ensured resources using for ban pigs productions:

Land: Land for ban pig was quite large (0.5 ha to 40 ha). Land owners combines growing, forestry, grazing pigs and others.

Labor: Farm owners hired other farmers (1-5 employees/farm) and paid wage (VND 3 mil. per month). The employee worked full-time in farms like agricultural workers.

Capital: Fund of farm owners was from themselves or borrowing. The fund was allocated to every production and business activity of farms. Ratio of fund for pig was different and flexible according to seasonal business. Normally, ranchers spent around 20-50% of total fund for pigsty and food (food for piglets).

Pig breeding and food: Pig breeding in each farm was provided by farm itself. The ranchers release some places for sows (3-10 heads) and boars (1-3 heads) and had special food for them. Full-term piglets would be separated and transferred to other cages.

Technique: Technique using for ban pig was similar with farmers in villages, extensive grazing. However, at farms, ban pigs were large scale and ranchers applied different feeding process.

Food: In farms, the owner could manage food for pigs initiatively. Bran for piglets, maize, cassava, vegetables for 2-3 month pigs. Meals were fixed daily with alarm.

Buyers of farms were diverse, including slaughter, restaurant owners, consumers, etc. Restaurant owners were main buyers. Consumers were relatives and tourists.

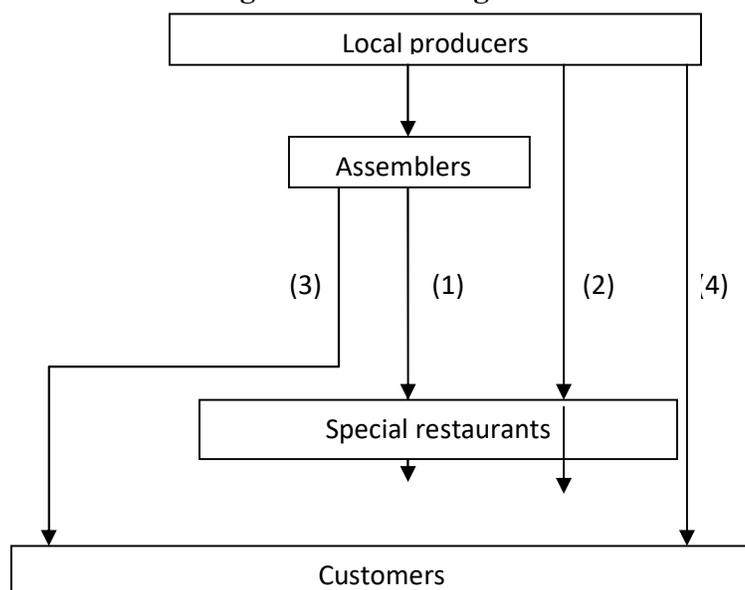
3.2. The Marketing Channels of Ban Pigs in the North Vietnam.

The Ban pigs often are reared in the highland in North Vietnam. With different climate conditions and farming systems, the food sources as well, the quality of Ban Pigs depends on its provenance. It can be said that with a special taste, Ban is one of the special product in Vietnam.

The price of Ban, therefore, also higher many times in compared with the normal pigs. In fact, with high retail price, it is hard to find the Ban pork at wet markets. The Ban Pigs are often mainly transacted directly to the restaurants through the free traders. This reason also make the ban pork are not popular in the market and the approach ability of customer to this special meat is limited, so a limited quality of Ban pig is supplied to the market.

The marketing channel of ‘Ban’ pig is different with other pig breeds.

Figure 1: Marketing channels for Ban Pigs



Source:Survey 2017

Marketing channels for Ban Pig’s products are relatively short. Through the information that collected from the interview with the restaurant owners, the marketing channels of Ban pigs often are shaped as the following types:

(1) This is the most popular marketing channel of Ban Pigs. Ban pigs from the local producers are collected by the assemblers (they are local assemblers or from other provinces) before being purchased by the special restaurants. These restaurants would process Ban pork into the different dishes before they are put on the table for the customers. In this channel, assembles play an important role in collecting the live pigs from the scattered producers. They often have deep understanding about the origin and the quality of Ban pork through the experience of observing the pig appearance. They help the restaurants have stable supplying sources. These assemblers not only sell live Ban pigs to the restaurants, in many cases, they slaughter live pigs and sell them with a 15%-20% higher price. These cases just appear when restaurants purchase small amount and sell Ban pork not frequently. In this channel, the assemblers often have a good relationship with producers, and the restaurants often have long-lasting relationship with the assemblers too.

(2) In this channel, Ban pigs would be transferred directly from the producers to the restaurants, not through the assemblers. In fact, the big restaurants often have their representatives in the different provinces. These representatives will procure the live pigs. Then, Ban pigs will be transported by their trucks to the restaurants. In this channel, the high volumes of Ban pigs are purchased, and then the restaurants often spend a special area to confine these pigs. Through this channel, restaurant owners save the middle cost for the assemblers. Additionally, the quality of pigs also is as they wish.

(3) (4) In this channel, the customers purchase Ban pigs directly from the assemblers or from the producer. However, the volume of Ban pigs through this channel is not much. In fact, the customers buy pigs through this channel just in some special occasions such as New Year holidays or other festivals. Being able to buy pigs from this channel, it requires the customers to have acquaintance with the assemblers or producers. Through this channel, customers often get a lower price of 30%-40% compared with the price offered from the restaurants.

4.CONCLUSION

Indigenous pig production and marketing is attracted many researchers since the last years (**Herold et al, 2010, 2012, Phuong et al, 2014, Lemke, 2006**). Some of them described about the production under the technician opinion and some others try to approach value chain. In this study, we try to explore the picture of indigenous production and marketing channel. The results of the study contribute the literature of pig production and marketing, indigenous pig marketing and it also can be applied for policy makers in considering about the indigenous pig development. In general, the Ban pig market still depends much on the assemblers who are the main collectors and play an important role in delivering pigs from the producers to the restaurants. To be sustainably develop indigenous pig sector, the farmer should keep the origin quality of Ban pigs by not feeding them by too much the commercial concentrate ingredients. Because the customers like Ban pork due to its feeding naturally and its special taste, therefore, the Ban pigs also are alike other normal pigs if the producers feed them commercially. The benefit in marketing channels should be more fair in order to develop the Ban pig supplying chain sustainability and encourage the small producers expand their farm systems and bring the quality pigs to the market.

REFERENCE

Herold P, Roessler R, Valle Zárate A and Momm H 2012 Development of organisation and planning in animal breeding: I. A review on breeding organization. Archives Animal Breeding, 55(4):402-414.

Herold P, Roessler R, Willam A, Momm H and Valle ZárateA 2010 Breeding and supply chain systems incorporating local pig breeds for small-scale pig producers in Northwest Vietnam. [Livestock Science](#), 129:63-72.

Lemke, U., B. Kaufmann, L T Thuy, K. Emrich, A. Valle Zaraté. 2006. Evaluation of Smallholder Pig Production Systems in North Vietnam. Assessment of Input, Output, Economic and Biological Efficiency. IN Lemke, U.2006. Characterisation of Smallholder Pig Production

MARD, 2015, Ministry of Agriculture and Rural Development.
<https://www.mard.gov.vn/Pages/default.aspx>

Phuong, N. V., Cuong, T.H, D T M Hanh, A Markemann, A Valle Zárata, Mergenthaler. 2014. Impact of quality attributes and marketing factors on prices for indigenous pork in Vietnam to promote sustainable utilization of local genetic resource. Livestock research for rural development (26) 07 2014. Available on line: <http://www.lrrd.org/public-lrrd/proofs/lrrd2607/phuo26126.html>

Systems in Mountainous Areas of North Vietnam. PhD Dissertation. Institute of Animal Production in the Tropuc and Subtropics. University Hohenheim. Stuttgart, Germany.