

The current status, challenges and prospects of native pig production and large-scale farming in Laos

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SUMMARY

This review aimed to investigate the potential native pig development and the trend that large-scale farming may influence native pig production in Laos. The review found that native pigs were estimated to be around 88% of the total pig population in Laos in 2023. Commercial pig farming was found only in the main cities, particularly the central and southern provinces, which increased from 578 in 2019 to 703 farms in 2022 and 737 farms in 2023. Due to the serious economic crisis starting in 2021, many Lao pig producers stopped their businesses, leading to the decline of the commercial pig population by almost 30% in 2023 compared to 2022. The average pork per capita consumption in Laos in 2021 was estimated at about 14.2 kg. Though not as high as the backyard, commercial farms still contribute essentially to the pork supply in Laos (12%), increasing the volume from 87,628 tonnes in 2015 to 137,775 tonnes in 2024. The main native pig producers are small-scale rural farmers who have not yet improved productivity or reproductive performance, and the main purpose of their production is household consumption rather than market orientation. However, farmers, mainly in the main cities, improved them by cross-breeding native pig sows with Duroc boar for better lean meat. The main challenges for native production in Laos include poor farm setup and management, high cost of commercial feed, and poor breeding and genetic management. Therefore, creating awareness of the benefits of setting up a pig farm and management, providing better option strategies for utilising locally available feeds, and providing better strategies on pig breeding could improve native pig production in Laos.

Keywords: native pig breed; rural area; large-scale pig farming

INTRODUCTION

The pig production sector in Laos is considered small-scale production, which cannot be compared to or competed with other neighbouring countries like Thailand and Vietnam (Sur et al., 2002; Wang and Li, 2024). However, approximately 64% of rural households owned at least 1 or 2 pigs (Qiu, 2019), and around 5% of the pig-raising households owned more than 10 (Epprecht et al., 2018). According to the National Agricultural Statistics Survey 2019/2020 (III), the number of pig-raising households declined almost 14% from 306,000 in 2011 to 264,000 in 2020. The average number of pigs per pig-raising household also decreased from 3.19 heads in 2011 to 1 in 2020 (MAF, 2021). In 2023, Laos had a pig population of about 4.54 million, with approximately 88% native pig breeds, and over 65% of them were raised by small-scale farmers in remote areas (MAF, 2024). While more than 80% of nationwide pig producers are based on small-scale, consequently, the processing is mainly performed at farms or homes with only a few processing companies in the big cities (Eadie, 2024). The native pig breeds are considered an essential livestock production in rural development, especially for food security and empowering income for rural households. On average, pig production was distributed between 7–14% of annual revenue, and

over 50% of rural households consumed pork at least once a week (Chayavong, 2011; Xayalath et al., 2020). Currently, native pig breeds have become more popular for the main consumption in big cities due to their unique meat quality and organic product consideration. However, several scientific studies are still required to affirm this. At the same time, there are several challenges and issues for native pig producers, especially sows produce small litter size, low weight gain, and high-fat ratios. The innate characteristic of Lao native pig breeds produces between 1.3–1.5 litters per year with an average litter size of about 5.5–7 (Wilson, 2007; Keonouchanh et al., 2012 and Xayalath et al., 2021a). These figures might be significantly lower than those for hybrid European breeds raised by small and large-scale farms in Laos, which estimated the sows deliver a litter size of about 10.93 piglets per farrowing (Xayalath and Ratky, 2023). These are challenging issues for native pig producers in Laos, particularly those who aim to produce native pork as a business farming.

This review aims to investigate the trend of pig production and to find aspects of production that can be improved for Lao pig farmers, especially native pork producers in both remote and urban areas.

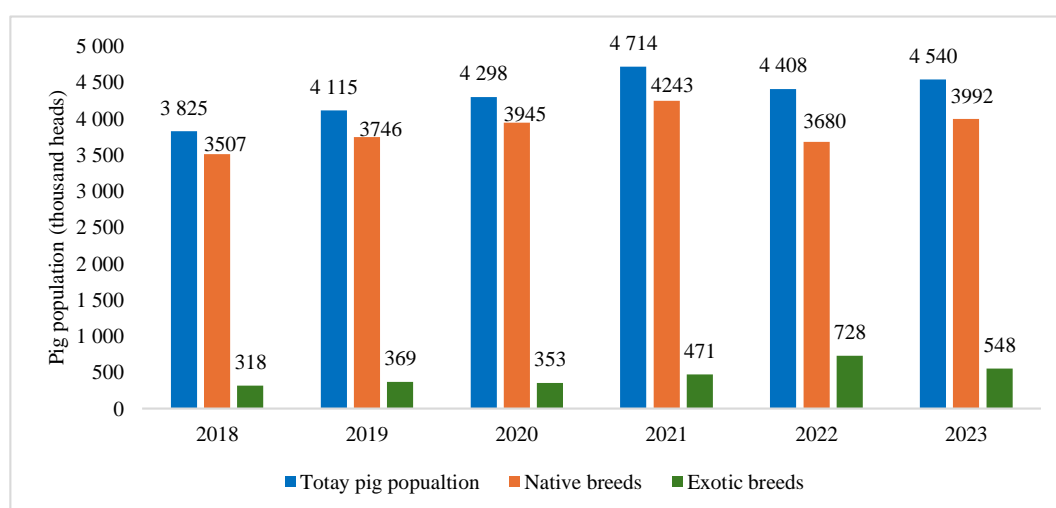
PREVIOUS, CURRENT STATUS AND CHALLENGES FOR PIG PRODUCTION IN LAOS

The trend of the pig population

Typically, the number of pigs in Laos has increased yearly since 2018, except in 2022, which slightly decreased by almost 6.5% compared to 2021 due to the global economic crisis (*Figure 1*). However, the exotic pig breeds (European types) were first introduced into Laos in 1982 (Keonouchanh and Dengkhounxay, 2017), but native pig breeds are still considered a core pig population in Laos, which is higher than 88% in 2023 (MAF, 2024). The Lao government strives hard to promote commercial pig farm production to secure the meat supply nationwide based on the 9th National Social-economic Development Plan. During the period

of 2018 to 2022, the number of commercial pigs gradually increased from 318,000 to 728,000 heads. This number slightly dropped to 548,000 in 2023 due to the economic crisis, leading many farmers to shift from pig production to other activities. Although, scientific studies are still required to prove this situation. As mentioned above, native pig production in Laos is essential for household consumption and rural development. However, most farmers still use traditional methods of raising, creating the consequences of low productivity, including poor reproductive performance and low growth rate (Kaensombath, 2012; Xayalath et al., 2021a). It could be a sparking point that there are many consumers and many emerging native pig farmers in the big cities these days.

Figure 1. The trend of pig population in Laos from 2018–2023



Source: MAF (2020, 2023 & 2024)

Typically, the commercial pig farms in Laos gradually increased from 551 in 2021 to 737 farms in 2023 (MAF, 2024), increasing nearly 22% compared to 578 farms in 2019 (Xayalath et al., 2021b). The number of pigs raised by commercial farms also increased from 470,522 in 2021 to 547,807 heads in 2023; however, it declined by almost 25% compared to 2022 (MAF, 2024) due to the economic crisis. Laos reached the peak record of highest inflation, over 47% in 2022 (Lao Statistics Bureau, 2023a). Overall, the number of commercial pig farms decreased in 2023, particularly in the central and southern provinces, for example, Vientiane Capital and Savannakhet provinces, while Luangnatha and Xaysomboun provinces did not find any records (*Table 1*). In contrast, the pig populations raised by commercial farms significantly declined in provinces. For instance, it decreased by over 71% in Luangprabang, 21% in Vientiane Capital, almost 37% in Savannakhet, and 32% in Champasack provinces compared to 2022. Anyway, in 2023, some new

emerging commercial pig populations existed in several provinces, such as Oudomxay, Bokeo, and Attapeu provinces, which increased by 137%, 380%, and 51%, respectively, compared to 2022 (*Table 1*). This might concern the mega-projects that have been launched in those provinces.

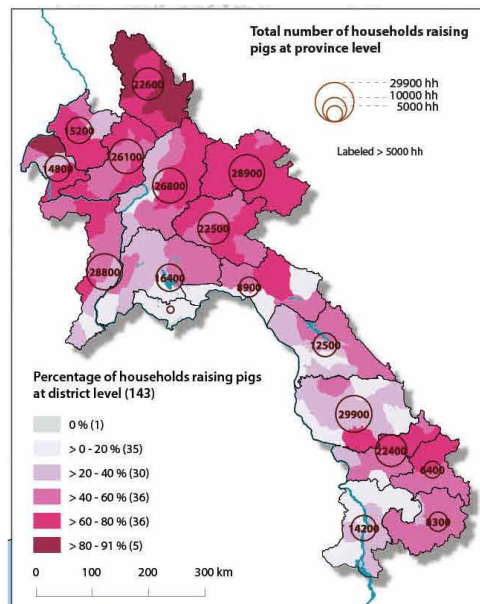
Figure 2 shows an interesting point: the commercial pig farms are mainly located in the central and southern parts of Laos, where the percentage of households raising pigs is less than 40%, whereas higher than 60% of households raising pigs were found in the northern parts (Epprecht et al., 2018). This means that most native pig breeds are farmed in the north or mountainous areas, where the available local feed enriches them. Unfortunately, the data regarding the specific number of particular types of native pig breeds in Laos, such as *Moo Lath*, *Moo Chid*, *Moo Mhong* and *Moo Daeng*, are limited, and more scientific studies are required.

Table 1. The number of commercial farms (A) and pig population (B) in Laos by provinces (2021–2023)

Provinces	Pig population			Commercial pig farms					
	2021	2022	2023	Number of farms			Number of pigs		
				2021	2022	2023	2021	2022	2023
Phongsaly	225,000	230,000	237,000	5	7	9	1,450	2,240	354
Luangnamtha	176,000	181,000	186,000	N/A	N/A	N/A	N/A	N/A	N/A
Oudomxay	108,000	110,000	114,000	22	12	14	13,217	7,159	16,968
Bokeo	56,000	57,000	59,000	12	11	12	3,054	4,651	22,316
Luangprabang	503,000	515,000	531,000	41	42	45	57,575	98,520	28,327
Huaphanh	216,000	222,000	227,000	8	6	6	8,400	7,784	2,202
Xayabury	283,000	290,000	298,000	21	23	35	9,806	15,250	25,939
Vientiane Capital	257,000	264,000	272,000	155	152	129	111,929	168,988	132,939
Xiengkhuang	170,000	174,000	180,000	3	5	5	10,000	31,571	26,125
Vientiane	260,000	267,000	275,000	41	42	44	67,028	75,890	54,523
Borikhamxay	166,000	170,000	175,000	11	14	12	24,004	50,764	50,870
Khammuane	118,000	121,000	125,000	90	81	77	17,318	22,352	18,201
Savannakhet	578,000	592,000	610,000	42	167	214	30,314	72,587	45,927
Xaysomboun	27,000	28,000	29,000	N/A	N/A	N/A	N/A	N/A	N/A
Saravan	983,000	530,000	546,000	57	83	80	6,974	19,420	8,867
Sekong	187,000	97,000	100,000	3	N/A	4	5,400	N/A	15,790
Champasack	344,000	506,000	521,000	37	46	50	98,653	146,068	99,568
Attapeu	57,000	54,000	55,000	3	2	1	5,400	4,956	7,467
Total	4,714,000	4,408,000	4,540,000	551	703	737	470,522	728,200	547,807

Source: MAF (2022 & 2024)

Figure 2. Percentage of households raising pigs in Laos classified by colour



Source: Epprecht et al., 2018, CC BY 4.0

The trend of pork consumption and pork supply in Laos

Pig production might be considered one of the primary sources of meat supply for domestic consumption in Laos. However, more than 88% of the total pig population in Laos is native pig breeds (MAF, 2024), but most of the pork supply for domestic consumption is mainly from exotic breeds or commercial pig farms. Most of commercial pig farms and a few pork processing companies are located close

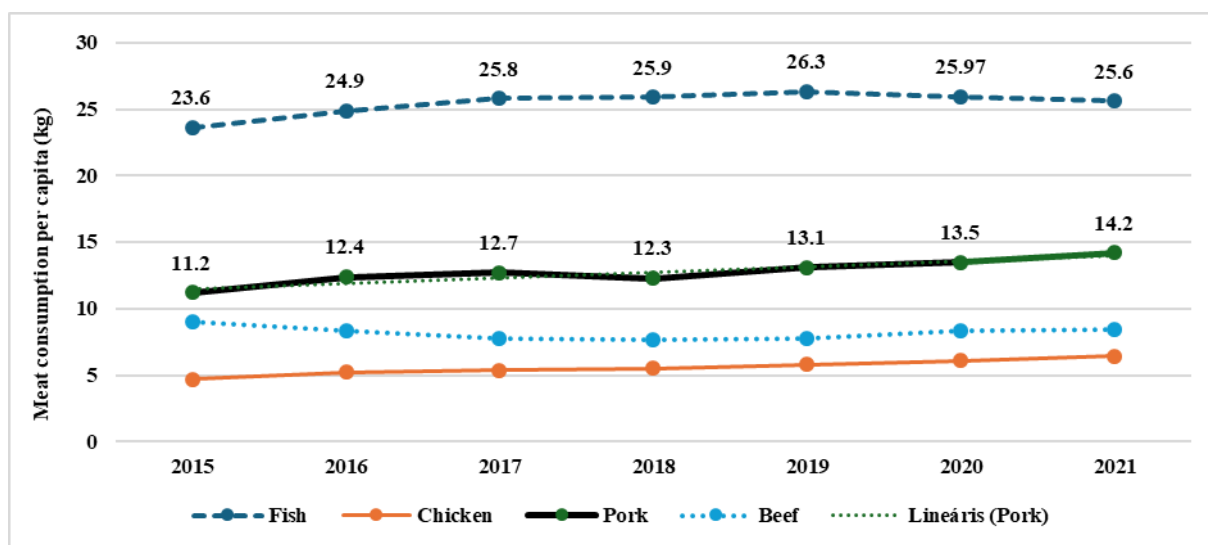
to urban or big cities (Eadie, 2024); in contrast, pork processing in rural areas is based on home processing. Figure 3 illustrates the trend of four primary meat sources supplied for domestic consumption in Laos from 2015 to 2021. Fish consumption in Laos decreased from 23.6 kg per capita in 2015 to 25.6 kg in 2021; however, it peaked at 26.3 kg in 2019. In contrast, the pork, chicken, and beef consumption trend in Laos gradually increased yearly. In particular, pork consumption amplified from 11.2 kg per capita in 2015 to 14.2 kg in 2021, which rose to 5.19% compared to 2020 and over 26.78% compared to 2015. These numbers might differ when compared to the pork consumption of people living in big cities, especially in Vientiane Capital, estimated at about 24.8 kg per capita in 2020 (Xayalath et al., 2022). However, per capita pork consumption in Laos by 2022 was not higher than in Vietnam, reaching 31.6 kg, but larger than in the Philippines, with an average of about 10.68 kg (Wang and Li, 2024). These two countries are the significant pig producers in the ASEAN region, with over 50% of the regional pig population in 2022 (Statista Research Department, 2024).

However, more than 88% of the pig population is native pigs, but most pork is supplied for domestic consumption in Laos, especially in the cities, mainly produced from commercial pig farms. Pork production in Laos was considered small-holders that could not compete with Vietnam and Thailand. Introducing hybrid pig breeds to the farmers is one of the government's priority promotion policies to ensure food security in Laos (MAF, 2015). Figure 4 shows the trend of meat production in Laos steadily increased from 337,402 tonnes in 2015 to 502,251 tonnes in 2025, which rose to 67.18% over 10 years. Pork production

in Laos is the second primary meat source after fish, which increased from 87,628 tonnes in 2015 to 137,775

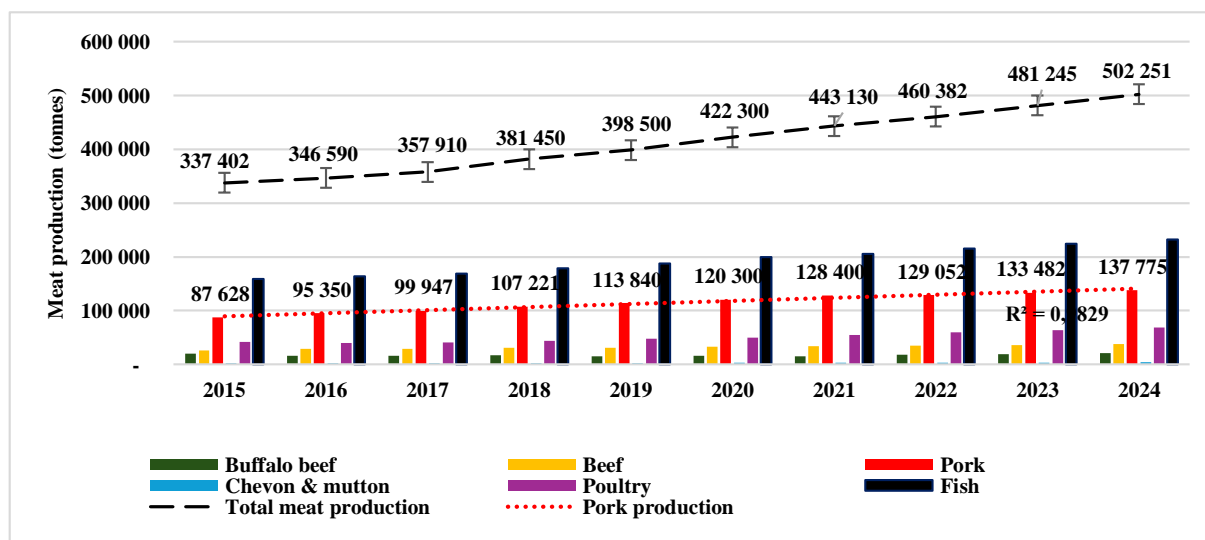
tonnes in 2024. The local chicken and beef came in the 3rd and 4th stages, respectively.

Figure 3. The trend of meat consumption per capita in Laos from 2015–2021



Source: Helgi Library (2024)

Figure 4. The trend of meat production in Laos from 2015–2024

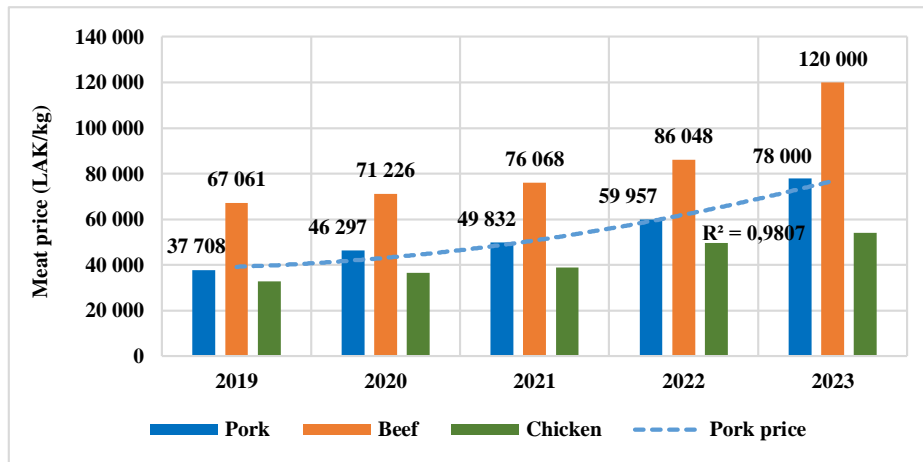


Source: Department of Livestock and Fishery (2024)

It might concern the results of the ASF epidemic, which invaded pig farms in Laos by July 2019 (Matsumoto et al., 2021&2023), and the economic crisis made meat prices in Laos in 2023 significantly increase almost twice compared to 2019. As shown in Figure 5, the cost of pork sharply increased from 37,708 LAK (Lao Kip) per kg in 2019 to 78,000 LAK in 2023 (approximately 4.34 and 5.55 USD, respectively), or about 107%, while beef increased by over 79%, and about 65% increase in chicken price. On the other hand, most domestic consumers relied on a minimum salary of about 92.46 USD based on the rate in 2023. However, the pork price per kilogram steadily

rose, but many pig producers tried to reduce their pigs on the farms due to the high feed cost. With these results, the pig population in Laos declined about 25% in 2023 compared to 2022 (MAF, 2024). According to the report on Laos' economic trends in 2023, the agriculture sector increased by 3.4% (Laos Statistics Bureau, 2023b), estimated 3.5% (Laos Statistics Bureau, 2024a), and the inflation rate is more stable in 2024 compared to 2023 (Laos Statistics Bureau, 2024b). Therefore, the pork price in Laos might be more stable in 2025; however, several factors must be considered.

Figure 5. The trend of meat price (LAK/kg) in Laos from 2019–2023



Source: Laos Statistics Bureau

The challenges in native pig production and pig farm development in Laos

As mentioned above, in 2023, the Lao pig population was estimated to be over 88% native pigs that are raised by relying on households, not farm operations. The chronic challenges of native pig producers still are pig growth with a small body weight at maturity, rare to reach 100 kg, gilts and sows producing litter size with low quality, including birth and weaning weight, growth performance, and higher pre-weaning mortality (Xayalath et al., 2021a). Typically, Lao native sows raised by rural farmers produce about 5 piglets in a litter (Keonouchanh et al., 2012). Nevertheless, the litter size of Lao native sows might differ based on region and management. For instance, native pigs raised by small-holder farmers in northern Laos produce about 7.6 piglets with an average birth weight of about 0.72 kg (Xayalath et al., 2021b). Fortunately, the litter size of native gilts could be increased up to 7.78 by inducing them with 20 mg Altrenogest, but the piglets' birth weight (0.64 kg) and body weight (3.42 kg) at day 28, still, unable to increase probably due to the body weight of gilts, and their uterus capacity that might not be suitable for nourishing more than 7 fetuses (Xayalath et al., 2022). Extending the suckling duration might improve the growth performance of the Lao native piglets pre- and post-weaning. However, there was no significant growth performance for the first 2 weeks of post-weaning for the piglets between group weaning at days 35, 42, 49 and 56 of age, but it was significant compared to those piglets weaned at day 28 (Xayalath et al., 2022).

The high feed cost could be challenging for small-holder commercial pig production in Laos. This might be one of the reasons why the population in commercial pig farms dropped by over 25% in 2023 compared to 2022 (MAF, 2024). One of the reasons for this might concern Laos, which must import 100% of all essential amino acids and other minerals to supplement feed production. With these results, projects related to legumes, maize, cassava, and other pig feed crops

production in Laos should be promoted to minimize feed cost as much as possible for Lao farmers.

OPPORTUNITIES FOR PIG FARMING DEVELOPMENT IN LAOS

Laos produces a large number of grains and other primary feed-stuff, which can supply high potential for farm feed production. In 2023, Laos produced around 10,934,194 kg of grains and other primary pig feedstuff, which increased by almost 16% compared to 2022. In particular, cassava increased by over 28.62% (Table 2). However, the primary protein sources, such as soybean and other essential minerals, including essential amino acids, are limited for Laos. Rice bran, cassava, peanut, sweet potato meal, and other local by-products might benefit farmers, especially those who produce local pig breeds, as mentioned by many authors in previous research (Chittavong et al., 2012; Phengsavanh and Stür, 2013). Moreover, as previously mentioned, the trend of pork consumption in Laos gradually increased yearly from 11.2 kg in 2015 to 14.2 kg per capita in 2021, which increased by 26.78% over a period of 5 years (Figure 3). Based on these figures, Lao farmers still have more chances to extend or further develop their business pig farms, including native ones, which are in more demand now.

Table 2. Grains and other primary feedstuff production in Laos from 2021–2023 (kg)

Types of crops	Year		
	2021	2022	2023
Rice	3,600,050	3,786,580	3,900,200
Maise	703,953	633,740	620,200
Soybean	6,340	4,745	7,540
Peanut	4,120	40,990	29,615
Cassava	3,710,000	4,863,400	6,255,410
Sweet potato	126,570	128,240	121,210
Total	8,211,033	9,457,695	10,934,194
Percent of change	-	+ 15%	+ 16%

Source: MAF (2024)

CONCLUSIONS

Pig production in Laos is considered a small-scale production for domestic consumption and has not yet improved both in productivity and quality of the products, especially the native pig breeds. This might be one of the reasons that pork production in Laos is still small compared to that of the number pig population. Therefore, the urgent current statuses and challenges for Lao native pig producers, including researchers, need to be addressed for better pig production in Laos. This could involve improving the quality of farm management, and improving genetics for better native pig breeders. Applying the locally available pig feedstuffs should be a sustainable method for Lao native pig producers to reduce the higher cost

of commercial feed. It might also benefit small commercial pig farms facing more challenges due to the high price of the commercial feed cost, which might be one of the reasons that many farm owners quit their business in 2023. In general, the trend of pork consumption in Laos is increasing yearly, which creates more opportunities for farmers to increase their pig business, especially those close to the main cities.

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