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PERUVIAN PORK

Industry analysis

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SUMMARY

Globally, pork continues to be the most consumed meat, reaching a global per capita consumption of 15.6 kg/year in 2019. Asia had the highest per capita consumption with 70.0 kg/year, followed by Europe with 50.0 kg, North America with 30.0 kg, and South America with 14.0 kg.

Global pork production in 2019 reached 124 million tons, with China as the largest producer (46.3%), followed by the United States (9.7%), Germany (4.6%), Spain (3.6%), Brazil (3.2%), and Vietnam (3.1%). Peru (0.1%) ranks number 48, after Malawi, Finland, and Venezuela.

In 2019, per capita pork consumption in Peru reached 8.5 kg/year, 10.4% higher than the previous year. Correspondingly, in the last 20 years, per capita pork consumption experienced an average growth of 2.3% and, when comparing 2011 and 2019, there was a 165.6% increase; thus, there has been sustained growth over recent years. The increase in consumption is directly related to the improvement of the Peruvian economy, in particular per capita income and the new strategic ally found in "Peruvian food," or the gastronomic boom.

The ranking of the most consumed meats in the country is led by chicken (51.0 kg/person/year), followed by pork (8.5 kg/person/year), beef (6.1 kg/person/year), turkey (1.3 kg/person/year), mutton (1.1 kg/person/year), and goat meat (0.2 kg/person/year). Other meats, such as guinea pig and rabbit, are consumed in smaller quantities. It should also be noted that the annual per capita consumption of milk is 87.0 kg, 17.4 kg for fish, and 2.5 kg for sausage.

In 2019, Peruvian pork production reached a volume of 231,000 tons, a 5.0% increase compared to 2018's production. Similarly, when comparing 2011 and 2019, there was a 47.1% increase, which points to sustained growth thanks to the higher domestic demand for this product.

When it comes to foreign trade, Peru does not export pork to any country given its health issues (Peru is not free of Classical Swine Fever). However, thanks to a partnership between the National Agrarian Health Service (SENASA) and the Peruvian Association of Pork Producers (APP), as well as financing from the Inter-American Development Bank (IDB), the Ministry of Agriculture and Irrigation (MINAGRI) is implementing a program to control and eradicate Classical Swine Fever (CSF) in the main pork-producing regions, which will extend to 2023. This will help to improve national health and provide access to international markets, particularly in Asia.

Since 2013 when the importing of pork began, imports have experienced an annual growth of 15.8%. When comparing imports from 2013 and 2019, there was a 107.8% growth. However, in 2019, imports dropped 18.3% when compared to 2018, particularly because Chile redirected its exports to the Chinese market, a market that has been reducing its domestic offer due to the negative impacts of the African Swine Fever (ASF) outbreak.

1 PRELIMINARY INFORMATION

1.1 LOCATION, GEOGRAPHY, AND CLIMATE OF PERU

LOCATION

Peru is located in the western part of South America. It borders Ecuador, Colombia, Brazil, Bolivia, and Chile, as shown in Figure 1.

It has sovereignty over 1,285,215 km² of land and 200 nautical miles of the Pacific Ocean, as well as 600,000 km² in Antarctica.

It is the third largest country in South America and one of the 20 largest worldwide. It holds sovereign rights over 200 nautical miles. As a consultative party of the Antarctic Treaty, it has a Scientific Base called Machu Picchu on that continent.

Figure 1 Peru's location in South America

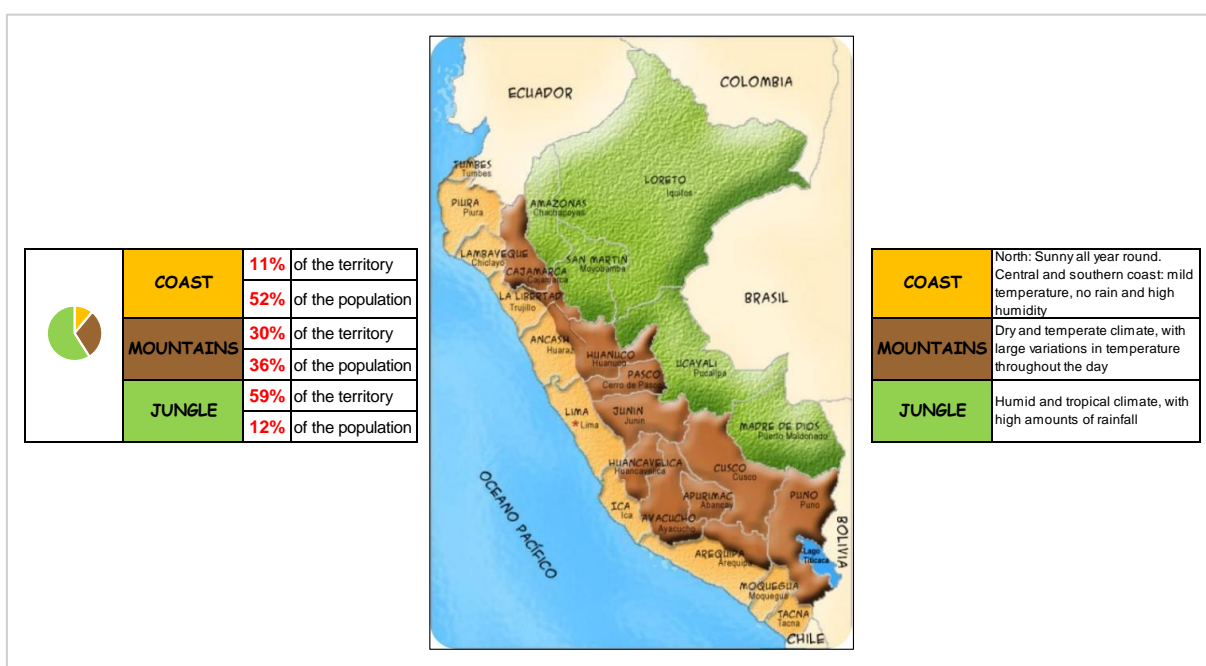


SOURCE: CREATED BY THE AUTHOR

GEOGRAPHY AND CLIMATE

Peru is a megadiverse country, with 11 different ecoregions and 84 life zones out of the 117 that exist worldwide. It has a variety of landscapes thanks to its geographical conditions, which in turn provide the country with a diversity of natural resources. Three large regions can be identified within its territory, and the country has typically been divided up into these three regions according to altitude: coast, mountains, and jungle, as shown in Figure 2.

Figure 2 **Geography and climate of Peru**



SOURCE: CREATED BY THE AUTHOR

Coast

The Peruvian coastline features a narrow strip of desert and fertile valleys bathed by the Pacific Ocean. The fertile valleys originate from the rivers that flow down through the Andes Mountains, which is the geographic divide with the mountains (*sierra*), and then disappear into the sea.

The coast has a warm temperate climate, with no extreme cold or suffocating heat, but a high humidity level and dense fog that produce an intense cold feeling in winter. In summer, there is little fog, and the temperature reaches 30 °C.

In the north, the coast has warm temperatures almost all year round, with a short rainy season between November and December. The south and central coast have two well-defined seasons: winter (April to October) and summer (November to March).

Mountains

The Andes Mountains dominate the landscape of the mountainous region of Peru, which has several ecoregions at different altitudes. The northern Andes are lower and more humid than the average, and the central Andes are the highest and steepest, with the highest peak in the country, the Huascarán snow-capped peak, 6,768 meters above sea level. The southern Andes are wider, and also known as the high plateau (*altiplano*).

The mountain region has two seasons: summer (April to October) with sunny days, cold nights, and little rain, the ideal time to visit; and winter (November to March) with heavy rains. During the day, the temperature can heat up to 24 °C and at night it can drop to -3 °C.

Jungle

Located to the east, there is a vast, flat region covered with vegetation in the Amazon River basin, which originates at the convergence of the Marañón and Ucayali Rivers. It is the largest region in the Peruvian territory, and is formed by high jungle (over 700 meters above sea level) featuring cloudy forests, and low jungle (under 700 meters above sea level).

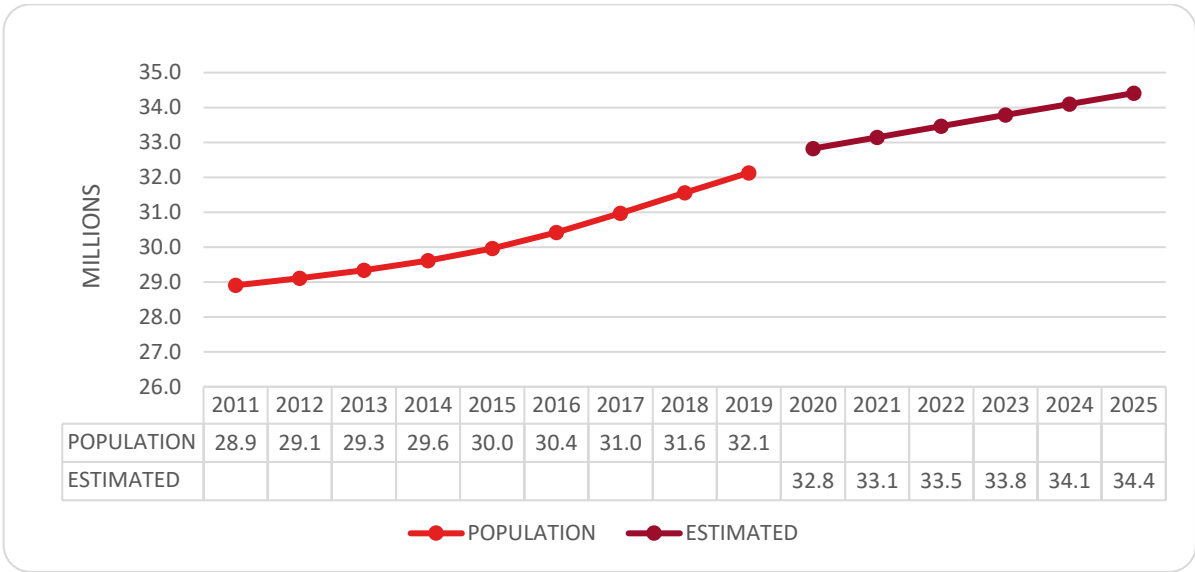
Like the mountain region, the jungle has two well-defined seasons. The months from November to March are abundant in rain and there is little rain between April and October, which is an ideal time to visit because river flow decreases, and roads are easily passable. Humidity is very high throughout the year.

At times, between May and August there are occasional "cold spots," where cold comes from the southern cone of the continent and the temperature drops to 8 °C to 12 °C.

1.2 PERU'S POPULATION

It is estimated that in 2019 Peru's population reached 32.1 million inhabitants, with 52% of the population concentrated on the coast, 36% in the mountains, and 12% in the jungle. Graph 1 shows a population growth of 1.8% when compared to the previous year. However, annual growth estimates are circa 1% due to the lower number of children per family.

Graph 1 Peru's population (millions of inhabitants)



SOURCE: POPULATION ESTIMATES AND FORECASTS FROM THE PERUVIAN BUREAU OF STATISTICS AND COMPUTING (INEI), 2020

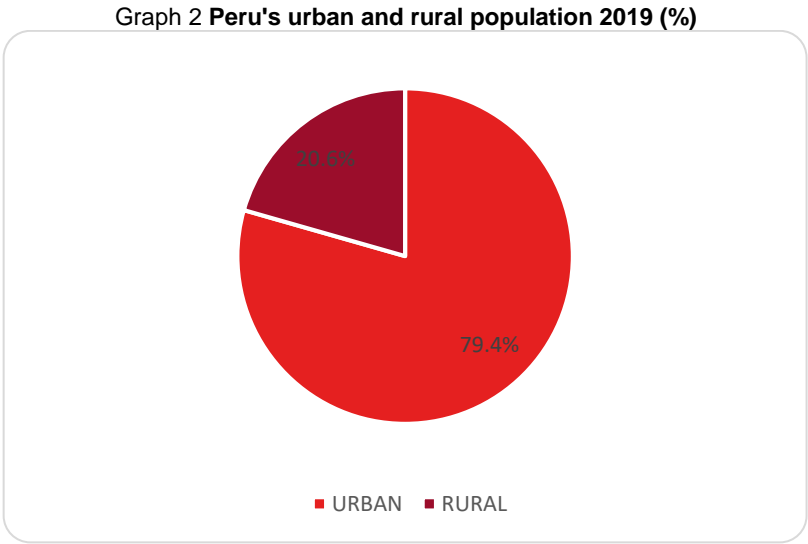
Peru's population is distributed in 24 regions, as shown in Table 1. Lima is the most populated region with 35.7% of the population. Peru's capital city is located there.

Table 1 Peru's population by region

	REGION	THOUSANDS	PERCENTAGE	CUMULATIVE %
1	LIMA	11,591	35.7%	35.7%
2	PIURA	2,054	6.3%	42.0%
3	LA LIBERTAD	1,966	6.0%	48.0%
4	AREQUIPA	1,526	4.7%	52.7%
5	CAJAMARCA	1,481	4.6%	57.3%
6	JUNIN	1,379	4.2%	61.5%
7	CUSCO	1,336	4.1%	65.6%
8	LAMBAYEQUE	1,322	4.1%	69.7%
9	PUNO	1,297	4.0%	73.7%
10	ANCASH	1,193	3.7%	77.4%
11	LORETO	980	3.0%	80.4%
12	ICA	940	2.9%	83.3%
13	SAN MARTIN	903	2.8%	86.1%
14	HUANUCO	799	2.5%	88.5%
15	AYACUCHO	681	2.1%	90.6%
16	UCAYALI	552	1.7%	92.3%
17	APURIMAC	448	1.4%	93.7%
18	AMAZONAS	419	1.3%	95.0%
19	HUANCAVELICA	383	1.2%	96.2%
20	TACNA	365	1.1%	97.3%
21	PASCO	282	0.9%	98.2%
22	TUMBES	249	0.8%	98.9%
23	MOQUEGUA	193	0.6%	99.5%
24	MADRE DE DIOS	157	0.5%	100.0%
	TOTAL	32,496	100.0%	

SOURCE: INEI, 2020

In 2019, the urban population of Peru represented 79.4% of the total population, as shown in Graph 2, while the rural population was 20.6%, with a decreasing trend over the years.



SOURCE: INEI, 2020

1.3 PERU'S ECONOMIC INDICATORS

1.3.1 GROSS VALUE OF PRODUCTION (GVP)

The gross value of production in the agricultural and livestock sector in 2019 was 37.263 billion Peruvian Soles at 2007 prices, with a variation of +3.2% when compared to the previous year, as shown in Table 2. The growth of the agricultural subsector is mainly explained by agro-exports, and in the livestock subsector by the higher production of pork, chicken, and fresh milk, all for domestic consumption.

Table 2 **Gross value of agricultural and livestock production (Millions of Peruvian Soles at 2007 prices)**

	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^P	Var. % 19/18
Agricultural and livestock sector	27,861	29,538	30,132	30,698	31,894	32,592	33,502	36,118	37,263	3.2
Agricultural subsector	17,377	18,471	18,673	18,834	19,408	19,601	20,149	22,019	22,593	2.6
Livestock sub-sector	10,484	11,067	11,459	11,865	12,486	12,991	13,353	14,098	14,670	4.1
Chicken	4,583	5,196	5,394	5,658	6,101	6,448	6,719	7,257	7,579	4.4
Fresh milk	1,459	1,488	1,502	1,529	1,582	1,624	1,673	1,718	1,770	3.0
Bovine	1,532	1,596	1,652	1,679	1,677	1,648	1,614	1,623	1,650	1.7
Pork	557	580	605	642	677	708	748	782	821	5.0
Others	2,353	2,207	2,306	2,358	2,449	2,563	2,599	2,719	2,850	4.8

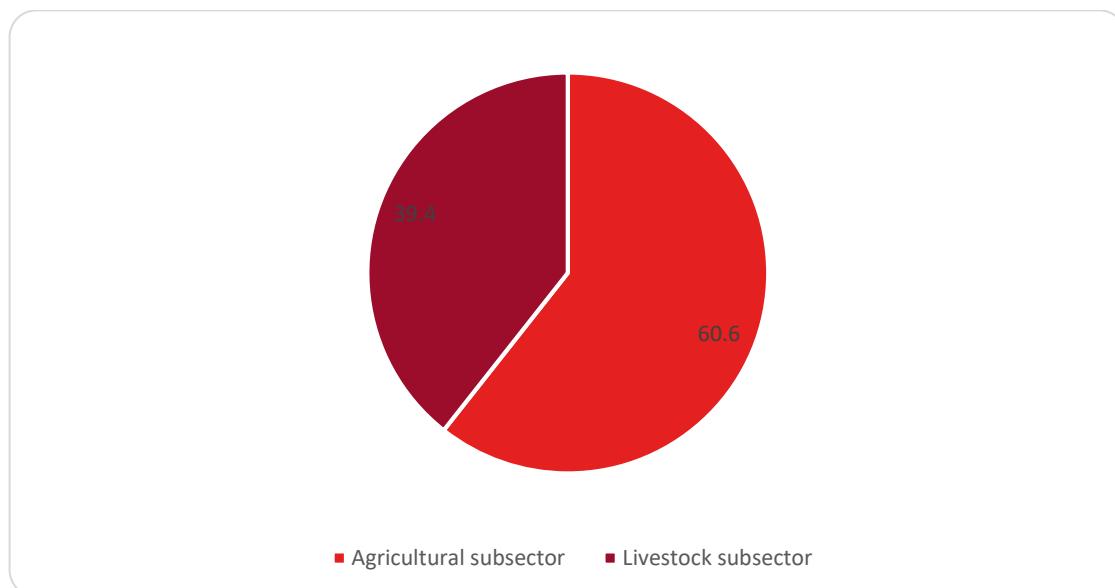
P: Preliminary

Source: Regional Departments of Agriculture.

Preparation: Department of Agricultural Statistics of the General Directorate of Policy Monitoring and Evaluation (DGESEP - DEA), MINAGRI

Graph 3 shows that in 2019 the GVP of the agricultural subsector represents 60.6% of the agriculture and livestock GVP, while the livestock subsector GVP represents 39.4%.

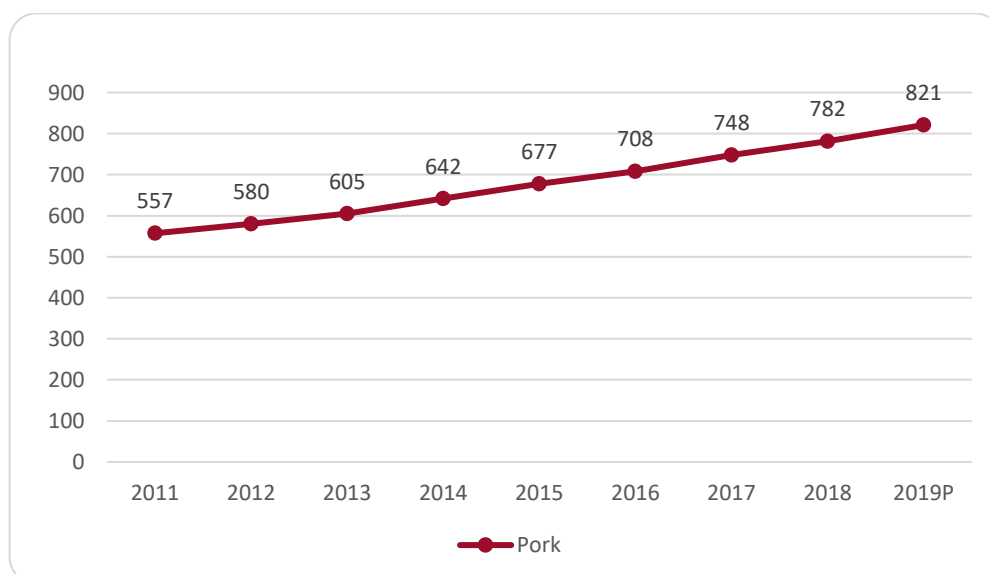
Graph 3 **Gross value of production by agricultural and livestock subsector 2019 (%)**



SOURCE: ADAPTED FROM MINAGRI

Graph 4 shows that the gross value of pork production in 2019 was 821 million Peruvian Soles at 2007 prices, with a 5.0% growth when compared to the previous year, mainly due to a higher household income, the larger number of sows in mechanized farms, higher productivity per sow, and slaughter weight.

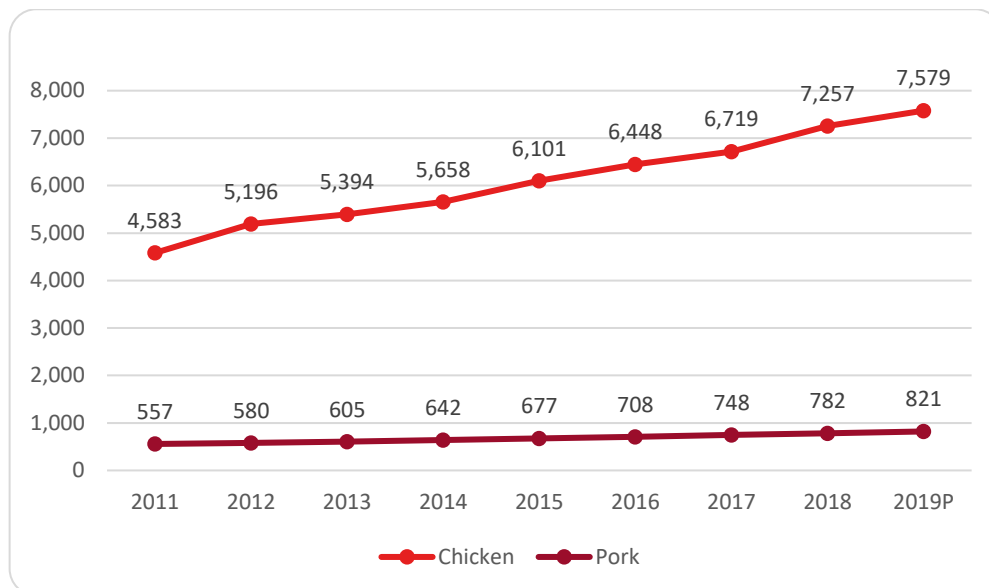
Graph 4 **Evolution of the gross value of pork production (millions of Peruvian Soles at 2007 prices)**



SOURCE: ADAPTED FROM MINAGRI

Graph 5 shows a higher growth in the gross value of chicken production when compared to pork due to the strong growth in per capita chicken consumption.

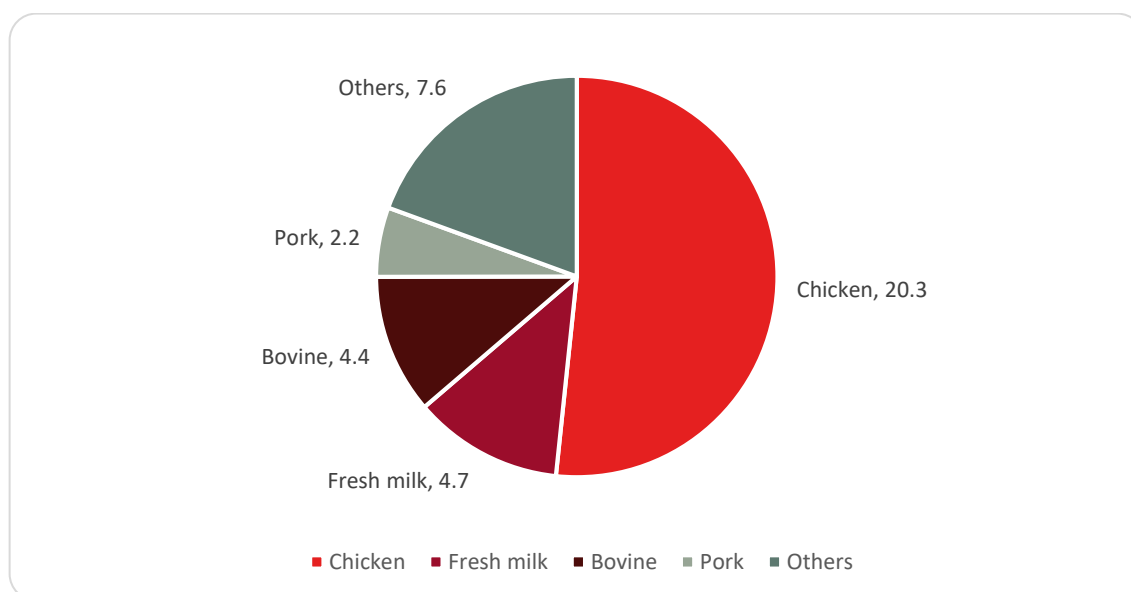
Graph 5 **Chicken and pork GVP comparison (millions of Peruvian Soles at 2007 prices)**



SOURCE: ADAPTED FROM MINAGRI

Graph 6 shows that chicken gross value of production (GVP) represents 20.3% of livestock GVP, fresh milk 4.7%, beef 4.4%, and pork 2.2%. The latter is mainly due to per capita consumption still being low.

Graph 6 **Breakdown of the livestock GVP 2019 (%)**



SOURCE: ADAPTED FROM MINAGRI

1.3.2 AGRICULTURAL PRODUCTION

In the agricultural subsector, Table 3 shows the top ten products of 2019 in gross value of agricultural production, with a corn production of 1,271,825 tons.

Table 3 **Agricultural production in 2018 and 2019 (tons)**

		2018	2019 ^P	Var. % 19/18
1	Paddy rice	3,557,900	3,188,306	-10.4
2	Potato	5,131,535	5,331,063	3.9
3	Parchment coffee	369,622	363,291	-1.7
4	Asparagus	360,630	366,758	1.7
5	Corn	1,266,030	1,271,825	0.5
2	Alfalfa	6,522,087	6,780,464	4.0
3	Banana	2,194,876	2,280,103	3.9
4	Raw cotton	44,195	58,308	31.9
5	Sugar cane	10,336,178	10,929,341	5.7
6	Cassava	1,239,741	1,286,013	3.7

P: Preliminary

Source: Monthly Statistical Bulletin, December 2019

Preparation: DGESEP - DEA, Ministry of Agriculture and Irrigation

1.3.3 LIVESTOCK PRODUCTION

In the livestock subsector, fresh milk had the highest production volume in 2019, with 2,129,000 tons, as shown in Table 4 and Graph 7, followed by chicken with 2,105,000 tons, beef with 378,000 tons, and pork with 231,000 tons. Pork had a 5.0% growth when compared to the previous year. In all cases, the increase is directly related to the improvement of the Peruvian economy, in particular per capita income and the new strategic ally, "Peruvian food."

Table 4 Evolution of livestock production (thousands of tons)

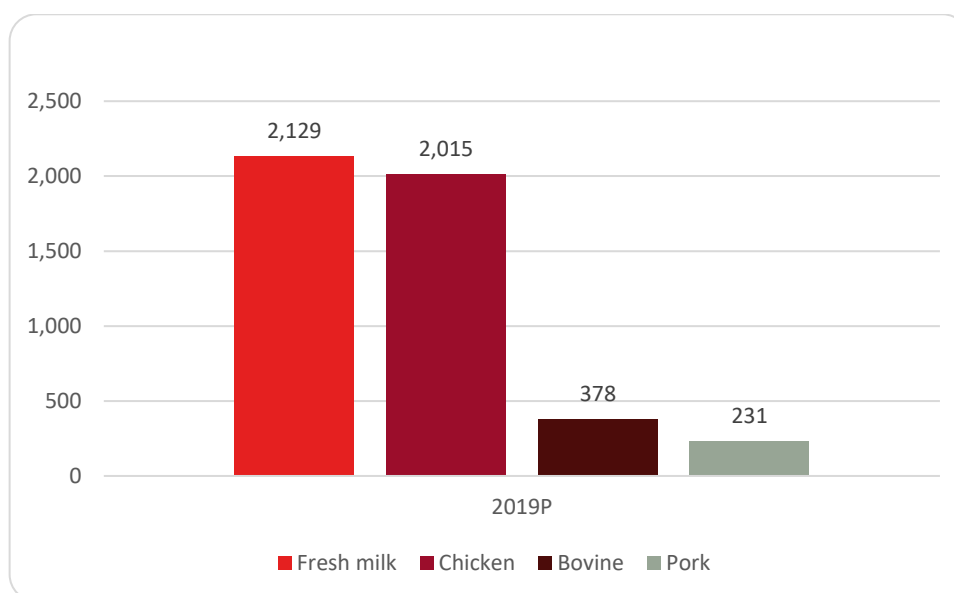
	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^P	Var. % 19/18
Fresh milk	1,756	1,791	1,808	1,840	1,903	1,954	2,014	2,067	2,129	3.0
Chicken	1,218	1,381	1,434	1,504	1,622	1,714	1,786	1,929	2,015	4.4
Bovine	351	366	379	385	384	373	370	372	378	1.7
Pork	157	163	170	181	191	199	210	220	231	5.0

P: Preliminary

Source: Regional Departments of Agriculture

Preparation: DGESEP - DEA, Ministry of Agriculture and Irrigation

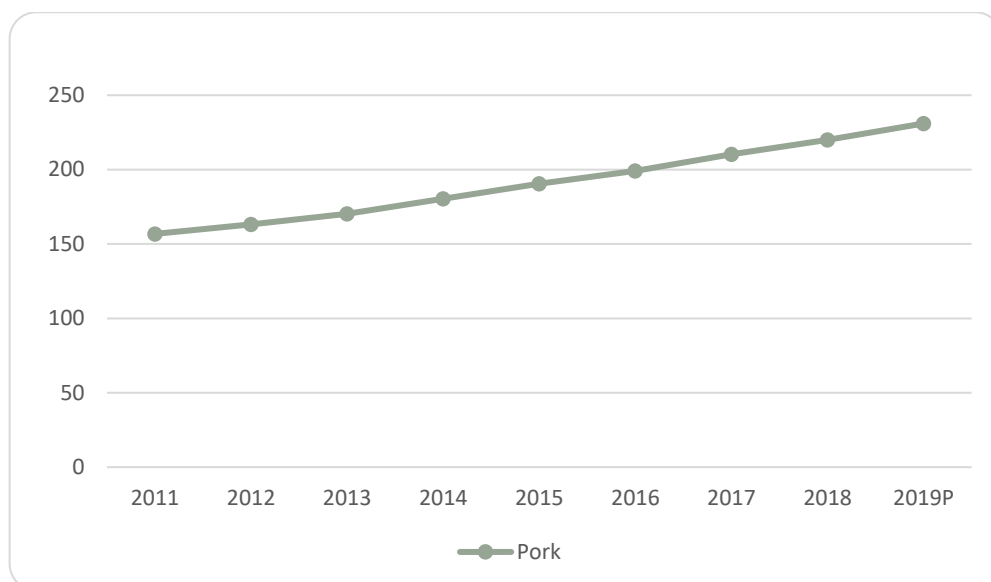
Graph 7 Livestock production 2019 (thousands of tons)



SOURCE: ADAPTED FROM MINAGRI

Graph 8 shows the growth of pork production, with an increase of 47% in 2019 when compared to 2011, due to an increase in the number of sows, the higher productivity per sow, and a slight increase in slaughter weight.

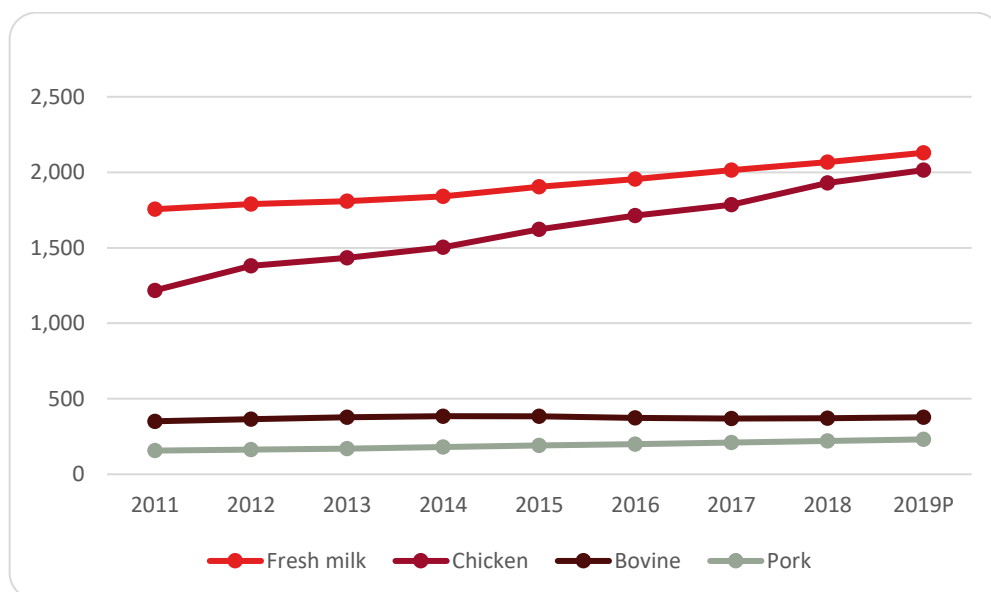
Graph 8 Pork production evolution (thousands of tons)



SOURCE: ADAPTED FROM MINAGRI

Graph 9 compares the evolution of livestock production since 2011 with the highest growth observed in chicken production (65.4%).

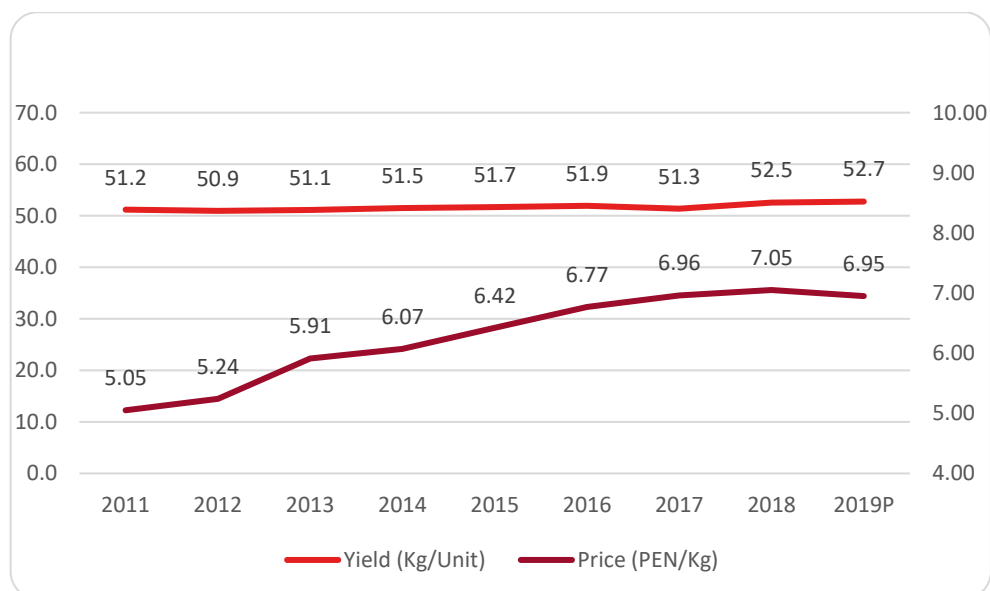
Graph 9 Comparison of the evolution of livestock production (thousands of tons)



SOURCE: ADAPTED FROM MINAGRI

Graph 10 shows the evolution of carcass yield and the prices paid to pork producers nationwide, with values for 2019 of 52.7 kg per unit and a price of 6.95 Peruvian Soles (PEN) per kilo.

Graph 10 Yield and price paid to pork producers



P: Preliminary

Source: Regional Departments of Agriculture

Preparation: DGESEP - DEA, Ministry of Agriculture and Irrigation

Figure 3 shows the estimated sow population in Latin America for 2020, with an expected average growth of 5%. It should be noted that the two main producers are Brazil and Mexico, and Argentina should show the highest growth.

Figure 3 Estimated sow population in Latin America 2020



SOURCE: REINALDO CUBILLOS, 2020

1.3.4 PORK IMPORTS

Table 5 shows the evolution of pork imports, which began in 2013 and were mainly driven by sausage factories and, to a lesser extent, supermarkets that were interested in the lower prices, given they buy international surplus that in turn pushes domestic market prices down. Imports came mainly from the United States and Chile. In 2019, 8,800 tons were imported for a total value of 18.4 million USD.

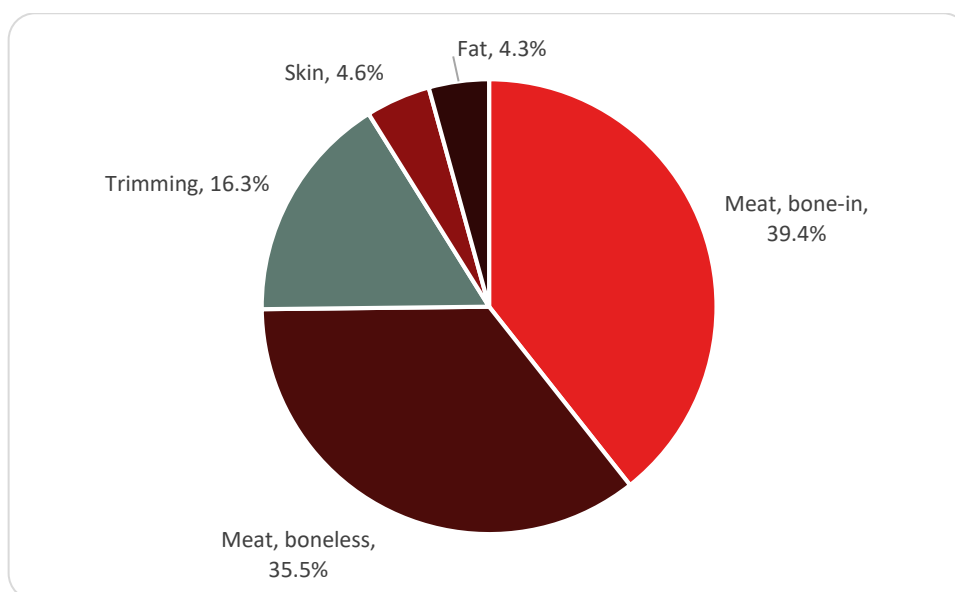
Table 5 **Pork imports (thousands of tons)**

	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^P	Var. % 19/18
Domestic pork	157	163	170	181	191	199	210	220	231	5.0
Imported pork			4.3	7.0	9.2	8.9	9.8	10.8	8.8	-18.3

SOURCE: ADAPTED BY APP FROM THE PERUVIAN CUSTOMS SUPERINTENDENCY WEBSITE (ADUANET)

Graph 11 shows the composition of pork imports in 2019, which represents almost 75% of total meat imports, bone-in or boneless.

Graph 11 **Composition of pork imports (%)**

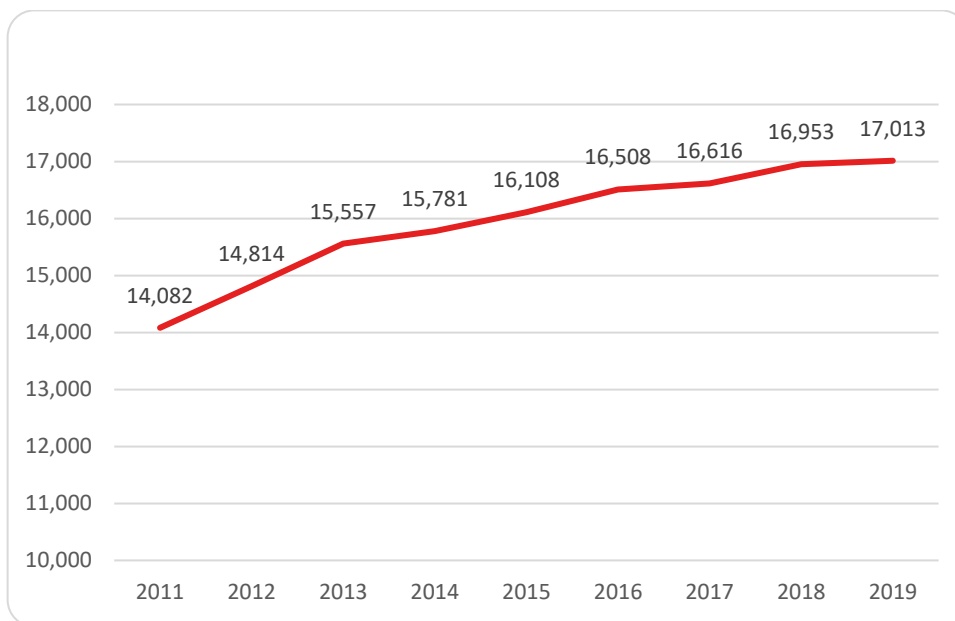


SOURCE: ADAPTED BY APP FROM ADUANET

1.3.5 PER CAPITA GROSS DOMESTIC PRODUCT (GDP)

Graph 12 shows the evolution of per capita Gross Domestic Product in Peruvian Soles of 2007, with a 0.35% increase in 2019 when compared to the previous year, and a 20.8% increase when compared to 2011, thanks to the improvement in the country's general economy.

Graph 12 Evolution of per capita GDP (Peruvian Soles of 2007)



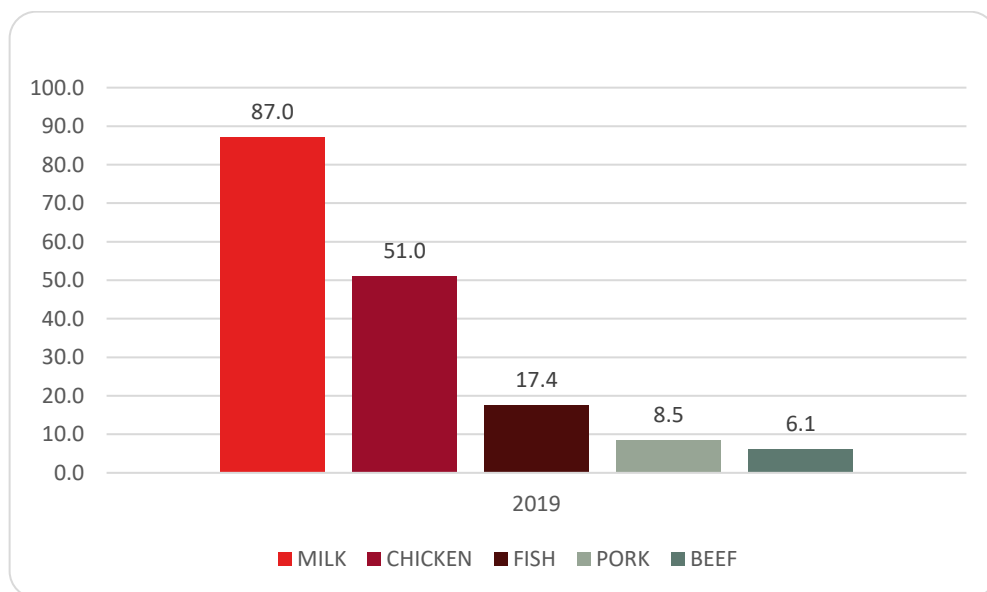
SOURCE: INEI, 2020

1.4 MILK, FISH, AND MEAT CONSUMPTION IN PERU

Graph 13 shows the annual per capita consumption of milk, fish, and meat in kilos, with a higher consumption of fresh milk (87), chicken (51.0), and fish (17.4).

It is estimated that in 2019 Lima had the highest annual chicken consumption, with 70.0 kilos per person. Similarly, Arequipa saw the highest annual pork consumption, with 18.2 kilos per person.

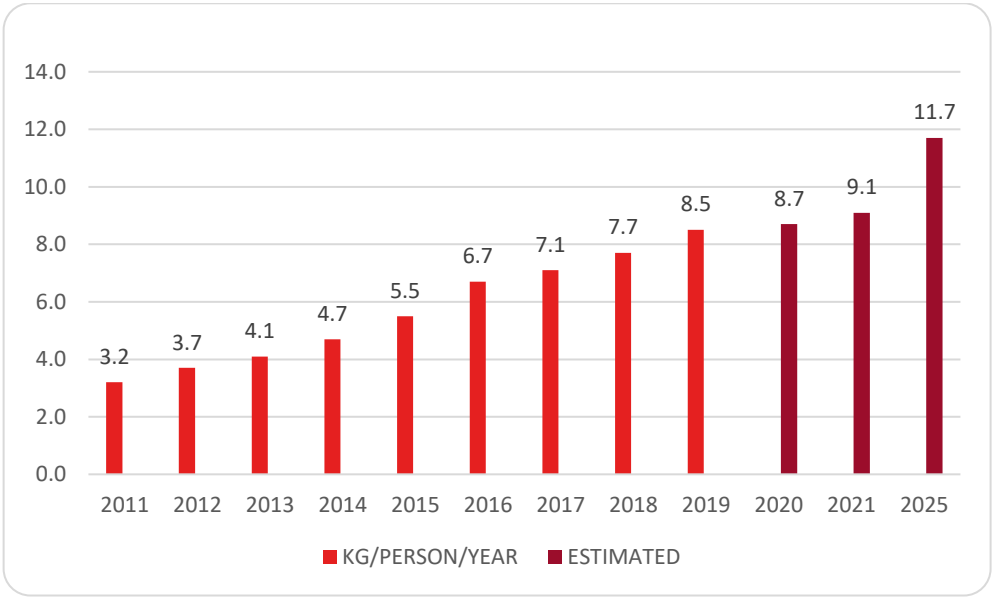
Graph 13 **Per capita consumption of milk, fish, and meat (kg/person/year)**



SOURCE: ADAPTED FROM MINAGRI

Graph 14 shows the evolution of per capita consumption of pork, revealing a growing trend through the years with estimation of 11.7 kilos by 2025, mainly because of the higher per capita income recorded in recent years.

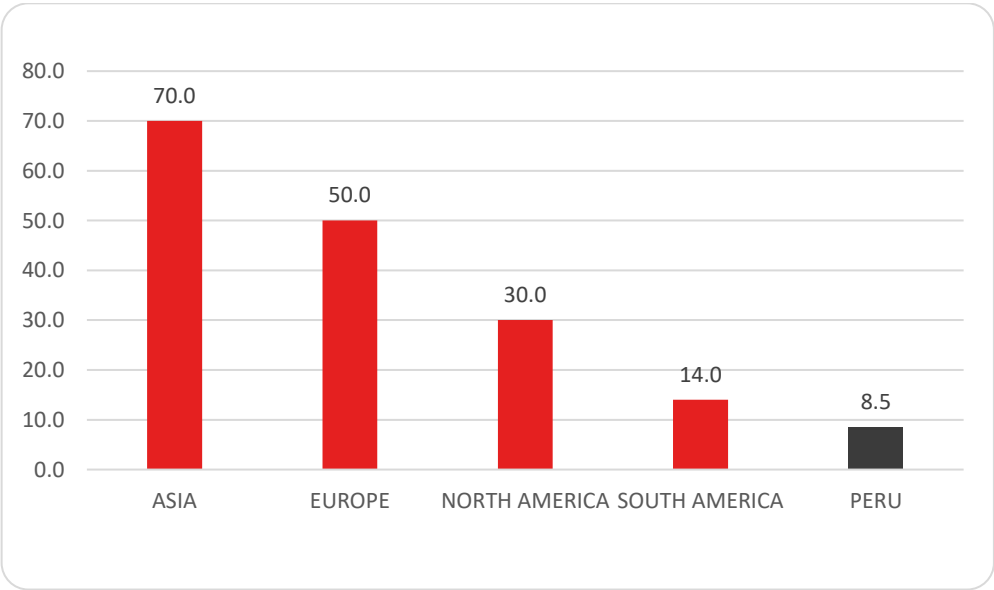
Graph 14 Evolution of per capita consumption of pork in Peru (kg/person/year)



SOURCE: APP, 2021

Graph 15 shows that the largest per capita pork consumer is Asia, with 70.0 kilos a year, followed by Europe with 50.0 kilos, North America with 30.0 kilos, and South America with 14.0 kilos. It also shows that Peru's per capita consumption represents only 61% of the average consumption in South America.

Graph 15 Per capita consumption of pork worldwide (kg/person/year)



2 PERUVIAN PORK MARKET

2.1 GENERAL DESCRIPTION

Pig farming in Peru is divided into three segments:

- Rural or self-consumption: pig farming is a secondary activity, complementary to other agricultural and livestock activities, or domestic breeding for self-consumption. Animals live in poor health conditions, have low productivity, and low product quality, with less than 50 heads per farm. Pigs are mostly fed with kitchen waste and grazing, and they are mainly found in the mountain and jungle regions.
- Semi-intensive: aimed mainly at semi-informal markets and industries, with animals in poor health conditions, low to medium productivity, low product quality, and little technology. Pigs are mainly fed with waste from restaurants and farmers' markets, and they are mainly found in the coastal region.
- Intensive: aimed at supermarkets, self-service stores, chain stores, district markets, and the sausage industry, with diverse health conditions, good to high productivity, good to excellent product quality, and medium to high technology use. Pigs are fed with balanced feed from quality raw material, and they are mainly found on the coast and the high jungle. This type of breeding is the focus of this work.

According to calculations from the Peruvian Association of Pork Producers, there are 600,000 pork producers in Peru, of which 456,000 (76%) belong to the rural or self-consumption segment and produce about 48,000 tons of pork (20% of the annual production), the equivalent of 150,000 sows.

Similarly, it is estimated that 12,000 tons of pork (5% of the annual production) are produced in semi-intensive breeding, the equivalent of 8,724 sows. Meanwhile, intensive breeding produces 180,000 tons (75% of the annual production), equivalent to 87,240 sows. It should be noted that both segments add up to about 96,000 sows, and 69,750 of those (72.6%) belong to APP members.

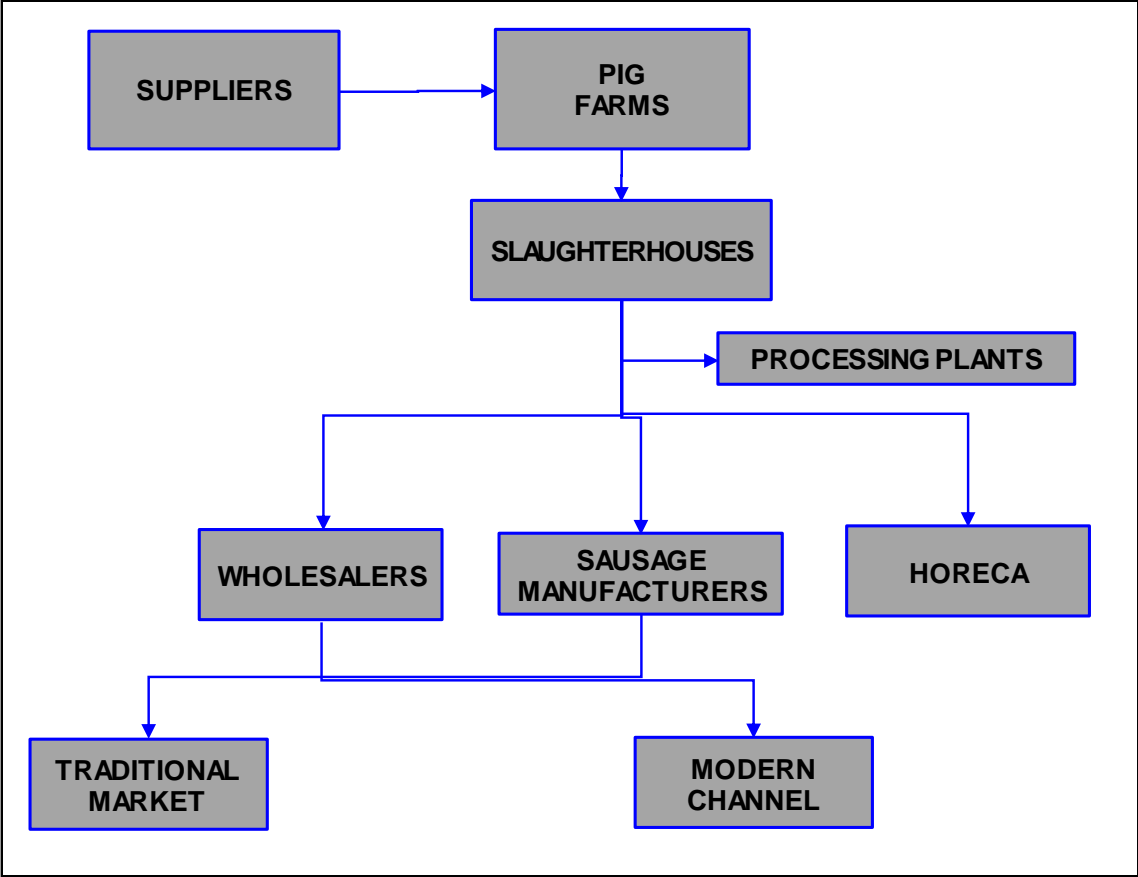
It is also estimated that direct and indirect labor in rural and semi-intensive production accounts for 550,000 jobs, while intensive production creates 75,000 jobs. Therefore, it is estimated that pork production provides livelihood to 2.5 million Peruvians.

Lastly, it should be noted that 98% of mechanized pig farms are the result of the diversification of chicken producing companies.

2.2 PORK INDUSTRY MAP

The productive chain of semi-intensive and intensive farms is represented in Figure 4, and it will be analyzed in the following sections of the study.

Figure 4 **Pork production chain in Peru**



SOURCE: PERUVIAN ASSOCIATION OF PORK PRODUCERS

2.3 SUPPLIERS

Balanced feed represents between 70 and 80% of pork production costs, with corn representing the highest volume and value. Therefore, we will analyze it in this section.

2.3.1 BALANCED FEED PRODUCTION AND RAW MATERIAL USED

In 2019, a little over 4 million tons of balanced feed were produced for the various animal species, 6.9% more than in 2018, as shown in Table 6. The highest volume corresponds to poultry breeding, and the second largest to pigs.

Table 6 **Balanced feed production (tons)**

	2017	2018	2019	%
Poultry	2,976,761	3,113,103	3,349,230	82.9%
Pigs	175,895	184,825	241,008	6.0%
Bovine	98,168	101,055	96,697	2.4%
Others	330,640	383,006	355,358	8.8%
TOTAL	3,581,464	3,781,989	4,042,293	100.0%

SOURCE: MONTHLY STATISTICAL BULLETIN "AGRICULTURE IN FIGURES," MINAGRI 2019

Table 7 shows the raw material used in the manufacturing of balanced feed for all animal species in Peru. It is observed that the main input is corn, with 2.4 million tons, representing 57.2% of the inputs used. Thus, it has the highest impact on production costs.

Table 7 **Inputs for balanced feed manufacturing (tons)**

RAW MATERIAL	2017	2018	2019	%
Corn	2,101,423	2,264,323	2,445,372	57.2%
Wheat by-products	190,390	209,122	198,393	4.6%
Molasses	7,931	6,707	7,175	0.2%
Fish meal	43,638	54,142	48,706	1.1%
Fish fat	44,440	30,908	31,236	0.7%
Soy beans	42,031	47,182	65,314	1.5%
Oilseed cake	890,274	947,951	987,059	23.1%
Others	430,680	522,875	492,625	11.5%

SOURCE: MONTHLY STATISTICAL BULLETIN "AGRICULTURE IN FIGURES," MINAGRI 2019

Corn covers the most agricultural land in Peru, with 520,000 hectares. Of this, 60% is dedicated to corn and 40% to sweet corn.

90% of corn production is used as grain for manufacturing balanced feed and 10% as forage for dairy cattle.

35% of the corn for grain is produced on the Peruvian coast, and 55% in the Peruvian jungle, while the 10% used as forage is produced on the coast.

It is estimated that the average yield of corn on the coast is 9 to 10 tons per hectare (it is highly mechanized), while in the jungle it is 2 to 3 tons per hectare (low mechanization, lower seed quality, and rainfed only).

The solution to improve the yield on the coast is mechanizing crops (sowing, fertilization, and harvesting), while in the jungle it is improving seed quality.

Table 8 compares the volume of Peruvian corn production and the imported volume, which represents 76% of the total.

Table 8 Domestic and imported corn (tons)

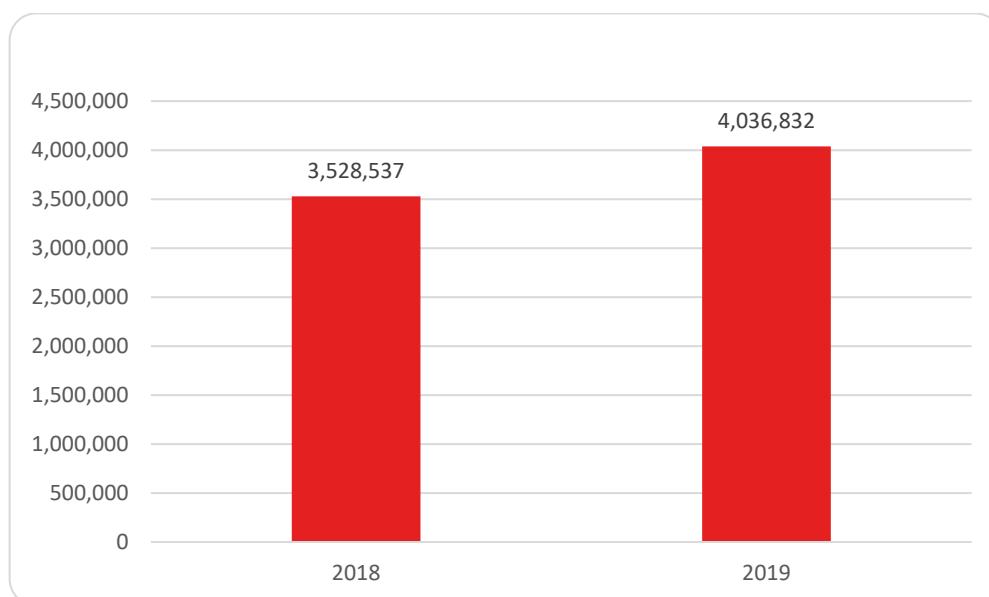
YDC	2018	2019	%
Domestic	1,266,030	1,271,825	24%
Imported	3,528,537	4,036,832	76%
TOTAL	4,794,567	5,308,657	100%

SOURCE: ADAPTED FROM MINAGRI AND ADUANET 2019

2.3.2 CORN IMPORTS

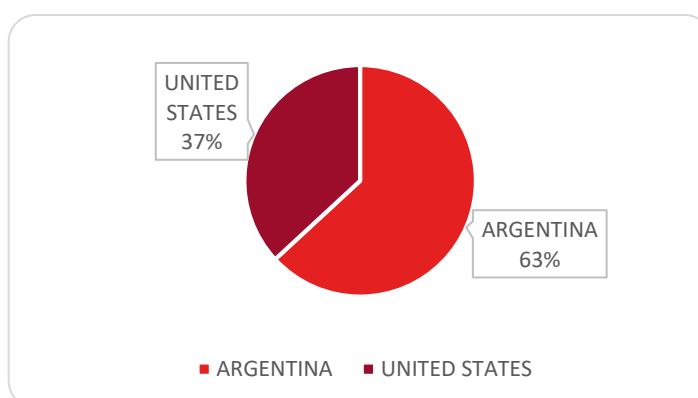
In 2019, there were 4 million tons of corn imports, 14.4% more than in 2018 due to an increase in poultry and pig breeding, as shown in Graph 16. They represented a little over 700 million USD (CIF). The origin of imports was 63% from Argentina and 37% from the United States, as shown in Graph 17.

Graph 16 Corn imports 2019 (tons)



SOURCE: MINAGRI 'S SUPPLY AND PRICE INFORMATION SYSTEM (SISAP-MAD), 2020

Graph 17 Imported corn origin 2019



SOURCE: MINAGRI 'S SISAP-MAD, 2020

Table 9 lists the main corn importers in 2019. 60% are poultry and pork producers, 30% raw material importers, and 10% balanced feed importers and sellers.

Table 9 **Top ten corn importers 2019**

	<i>Importer</i>	<i>%</i>	<i>CUMULATIVE %</i>
1	CARGILL AMERICAS PERU S.R.L.	33.6%	33.6%
2	CONTILATIN DEL PERU S.A	21.2%	54.8%
3	ADM ANDINA PERU S.R.L.	16.3%	71.1%
4	SAN FERNANDO S.A.	12.9%	84.0%
5	BUNGE PERU S.A.C.	5.1%	89.1%
6	CORPORACIÓN RICO S.A.C.	3.0%	92.1%
7	TECNICA AVICOLA S.A.	1.7%	93.8%
8	DON POLLO TROPICAL S.A.C.	0.6%	94.4%
9	GRANJA RINCONADA DEL SUR S.A.	0.5%	94.9%
10	AVIVEL S.A.C.	0.3%	95.2%

SOURCE: ADAPTED FROM ADUANET 2019

2.3.3 PIG FEED PREPARATION

In Peru, the preparation of pigs diets is based on the nutritional requirement tables provided by each genetics provider, with the necessary adjustments mainly according to the specifics of each breeding operation, health, facilities, climate, slaughter weight, and costs.

One feeding is typically provided during the replacement phase (from 140 days of age to insemination), and two feedings during the reproduction phase. During gestation (from weaning to giving birth) and farrowing (from giving birth to weaning) only those with the highest number of sows can offer up to two feedings during gestation and farrowing.

In the case of weaners, two to three feedings are usually provided, as well as during the fattening phase. Small and medium-sized producers usually buy pre-starter and starter feed, both in pellet or micro-pellet form. The main suppliers are Agribands Purina, Montana, and Next.

Finally, it is important to note that large companies transport balanced feed in bulk, mostly in powder form, while small and medium-sized farms move their feed in 40 to 50 kg polypropylene bags, the maximum value described by the Occupational Safety and Health Act from the Ministry of Labor.

2.3.4 MAIN FEED MANUFACTURERS

Table 10 shows the main farms that manufacture their own feed, listed from largest to smallest population, as well as their contact person and e-mail address.

Table 10 **Pork producers that manufacture their feed**

COMPANY	APP MEM-BER	CONTACT PER-SON	E-MAIL ADDRESS
Redondos S.A.	YES	Jorge Robles	jrobles@redondos.com.pe
Corporación Rico S.A.	YES	Javier López	ricopollo@ricopollo.com.pe
Avícola Yugoslavia S.A.C	YES	Eduardo Nestorovic	ynestorovic@yahoo.com
Granja Huerto San Martín de Porres	YES	Martín Palomino	martin.palomino@gmail.com
Protein Group	NO	Francisco Ponce	fponce@tecavi.com
Granja Los Huarangos	YES	Gustavo Robinson	huarangos@hotmail.com
SAN FERNANDO S.A.	YES	Sergio Gonzales	sgonzales@san-fernando.com.pe
Negociación Pecuaria Santa Patricia	YES	Luis Felipe Noriega	mmendoza@stapatria.com
Agropecuaria Isamisa S.A.C.	YES	Miguel Alejo	malejo@isamisa.com.pe
Agroindustria Campoy S.R.L .	NO	Michael Wong	mwong@agroindustriacam-poy.biz
Agropecuaria Wong S.A.C.	NO	Alfonso Yong Wong	alaned692@hotmail.com
Agropecuaria La Providencia S.A.C.	YES	Reynaldo Ghiggo	laprovidencia-huaral@gmail.com
Agropecuaria San Martín S.R.L.	YES	Miguel Santillán	gladysmarquez@donpollo.pe
Agropecuaria San Diego	YES	Martín Torrejón	agropecuaria_sandiego@hotmail.com
Negocios e Inversiones Agropecuarios S.A.C.	YES	Miguel Yzaga	myzaga@topsportintl.com
Hy Genetics Peru S.A.C.	YES	Martín Palomino	martin.palomino@gmail.com
Super Pig S.A.C.	YES	Víctor Quispe	superpigsac@hotmail.com
Granja Agropecuaria Inveragro	NO	Victoriano Rojas	vrvisalot@gmail.com
Granjas Amazónicas	NO	Holger Fernando Salinas	ocaro@granjasamazoni-cas.com
UPB Word- breeders	NO	César Palacios	palacios@fasetron.com

SOURCE: ADAPTED FROM THE PERUVIAN ASSOCIATION OF PORK PRODUCERS

2.3.5 CHALLENGES AND OPPORTUNITIES FOR SUPPLIERS

Challenges:

- Improving corn production per hectare in the jungle
- High dependency on imported inputs
- Fragmentation of balanced feed production
- Old equipment for balanced feed manufacturing

Opportunities:

- Using alternative, good quality inputs
- Manufacturing balanced feed in partnerships
- 40% of balanced feed could be transported in bulk
- Improving standardization of balanced feed quality

2.4 PIG PRODUCTION

2.4.1 LOCATION AND BIOSECURITY

Figure 5 shows the location of mechanized farms registered with SENASA throughout the territory in green dots. The concentration on the central coast around Lima, Peru's capital, is noticeable.

Figure 5 Location of mechanized farms in Peru

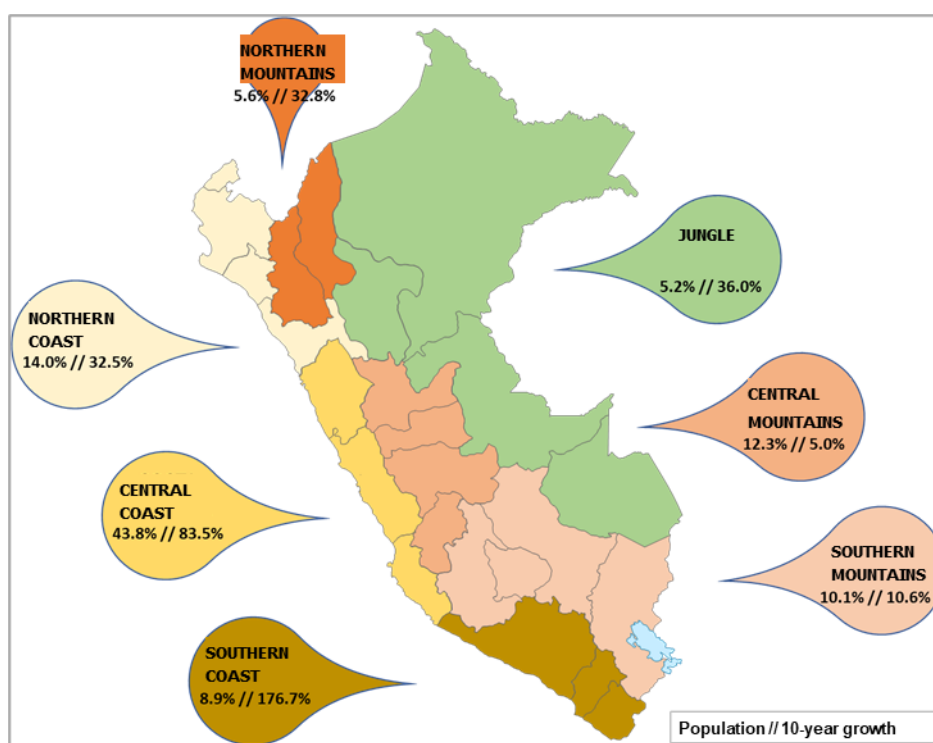


SOURCE: FRANCISCO ACOSTA WITH DATA FROM SENASA

It should be noted that north of Lima, in the Huaral Province, there are numerous old farms that do not keep a safe distance between them, thus causing biosecurity breaches and the ensuing health issues.

Figure 6 shows the distribution of the pig population, highlighting the higher concentration of animals on the central coast: 43.8%, which represents an 83.5% increase over the last 10 years. It should be noted that the southern coast accounts for 8.9% of the population, with -a 176.7% growth over the last 10 years. This area, and the Arequipa region in particular, has the highest per capita consumption in the country due to the excellent pork-based gastronomy, well received by both locals and tourists.

Figure 6 **Pig population distribution and growth over the last 10 years**



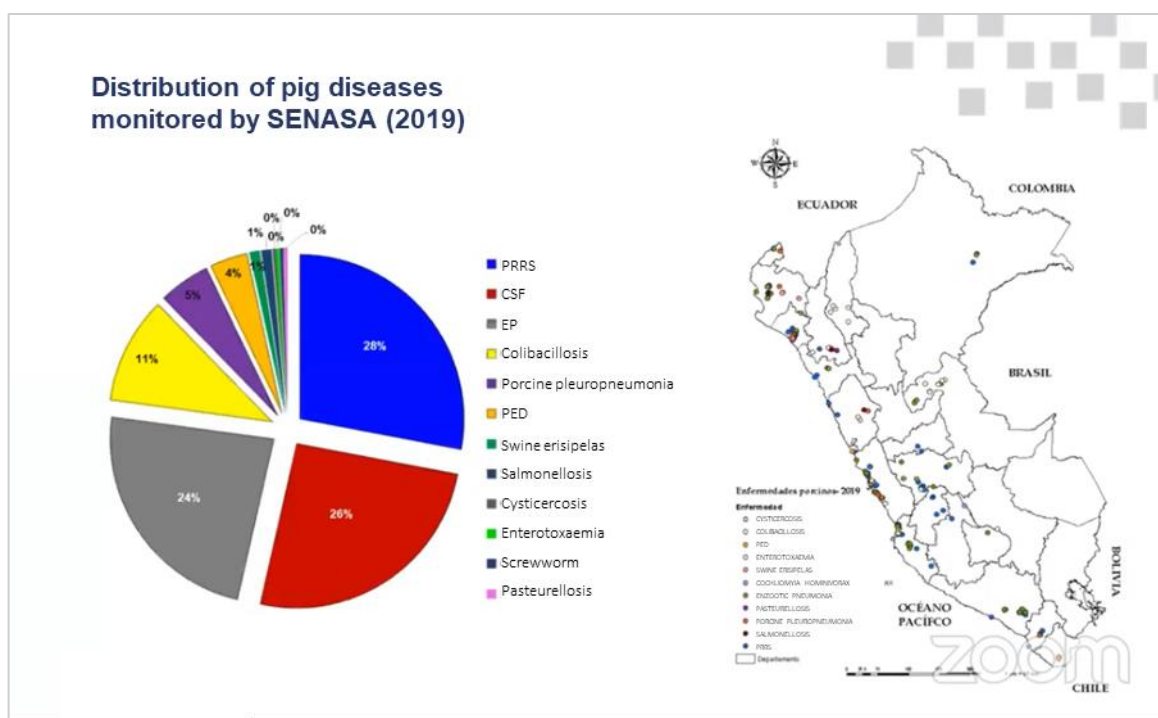
SOURCE: ADAPTED FROM THE PERUVIAN ASSOCIATION OF PORK PRODUCERS

2.4.2 HEALTH SITUATION

Figure 7 shows the distribution of the main pig diseases in 2019. The disease that affected the largest number of animals was the Porcine Reproductive and Respiratory Syndrome (PRRS) with 28%, followed by outbreaks of Classical Swine Fever (CSF) with 26%, Mycoplasmoses (EP) with 24%, Colibacillosis, and others, with 11% each.

It should be noted that Classical Swine Fever, or hog cholera, is the disease that hinders pork from being exported.

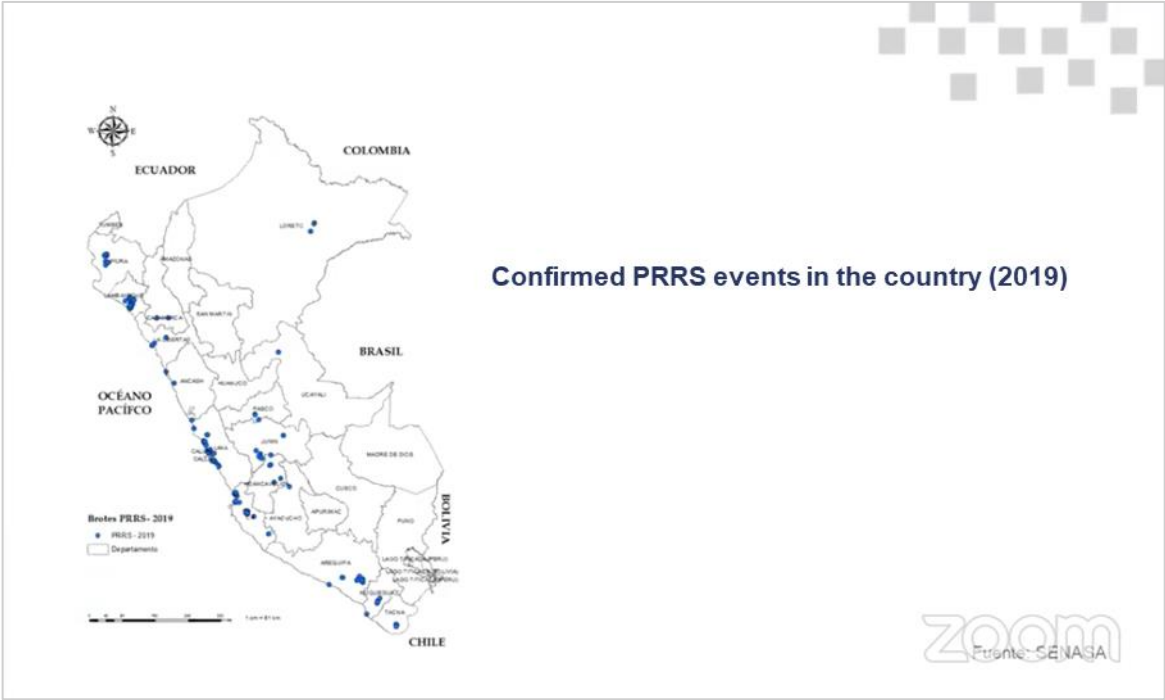
Figure 7 Distribution of pig diseases - Peru 2019



SOURCE: WILLIAMS OLIVOS, SENASA 2020

Figure 8 shows the location of pig farms with confirmed Porcine Reproductive and Respiratory Syndrome (PRRS) events in 2019. A concentration of cases along the coast is noted, with more cases on the central coast, in particular the Huaral Province with the highest number of cases.

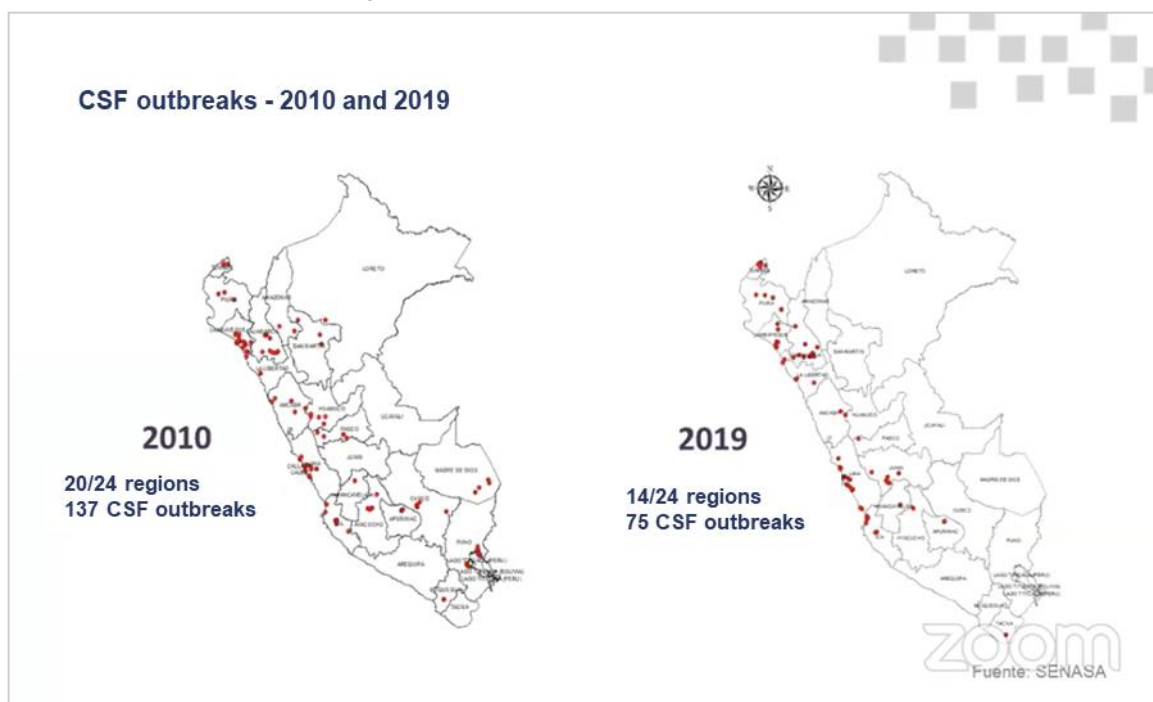
Figure 8 Confirmed PRRS events in Peru 2019



SOURCE: WILLIAMS OLIVOS, SENASA 2020

Figure 9 shows Classic Swine Fever (CSF) outbreaks. There were 137 outbreaks in 2010 and 75 in 2019. It should be noted that the southern coast has had no outbreaks in recent years, which would allow pork from this region to be exported to Asia.

Figure 9 Classical Swine Fever outbreaks in Peru



SOURCE: WILLIAMS OLIVOS, SENASA 2020

2.4.3 PIG PRODUCTION FARMS

Intensive pig breeding in Peru was developed as a result of the business diversification of chicken producers, who implemented breeding technologies adapted to the Peruvian environment.

Each producer owns the three phases of pig production (reproduction, rebreeding, and fattening). The oldest have full-cycle or single-site farms (the three phases in one location), and the wealthiest or newest have multi-site farms (the three phases in two or three locations). The latter are the ones with the highest productivity thanks to reduced health issues and improved breeding specialization.

The facilities feature high-grade material on floors and walls, lighter ceilings (made of polypropylene, straw or fiber cement), without insulating materials, and side plastic curtains to control natural ventilation. During the reproduction phase, sows are housed in individual metal crates, both during gestation and farrowing, while pens of variable capacity with raised plastic-floor are used during rebreeding, and pens with slatted or partially-slatted concrete flooring, also of various capacity, are used during the fattening phase. Some are testing deep bedding systems for rebreeding and/or fattening.

In most farms, feeding during the gestation stage is semi-mechanized, with adjustable, individual dispensers for each sow, and manual during the farrowing stage. Both in rebreeding and fattening there is a transition from manual to semi-mechanized feeding due to labor shortage. This change has two problems: its high initial cost, and the lack of electricity in many facilities.

Reproduction is carried out by purchasing diluted semen doses, mainly from commercial farms, or by collecting and diluting on-farm semen, particularly in grandmother or great-grandmother farms, to artificially inseminate the sows. In general, productivity is high due to a relatively high use of labor.

In rebreeding and fattening, automatic feeders with hopper are used, a few from recognized brands (such as Crystal Spring and Rotecna) and others that are local copies of those brands (cheaper, but with poor results). In most farms, feed distribution is manual. For the final phase, almost all farms add Ractopamine to the feed (a food additive that increases muscle growth and improves carcass yield). This product restricts pork exports, particularly to Asia and Europe.

The market live weight is around 105 kg, which is reached on average at 145 to 150 days of age. By this age, males in particular have not reached sexual maturity, which is why surgical castration is not practiced. However, a few farms have adopted immunocastration as an alternative technique. On the coast, one company castrated all its animals, in part to protect the brand's image, but also at the request of a client, a sausage factory. The same is done by the main producers in the jungle, where early sexual maturity occurs.

Despite the existence of Law No. 30,407, SENASA's Animal Protection and Welfare Law, compliance with this law is still not mandatory, and it is not well-known by farmers.

In the case of waste water (animal waste), most farmers have primary lagoons to which they add bacteria-based commercial products that breakdown organic matter. A few use a solids separator, and very few (apparently, three companies) have installed biodigesters, two locally made, and one manufactured in Brazil with Brazilian technology. In the latter case, a generator for the farm was installed.

It should also be noted that pig corpses are disposed of on farms in septic tanks, where the best-case scenario is for the same products used for waste water to be used to accelerate decomposition.

Since 2012, there has been an Environmental Regulation for the entire country, but since it was written based on mining, it is too generic and difficult to enforce. In 2019, the General Directorate of Agricultural Environmental Affairs, which is part of the Ministry of Agriculture and Irrigation, proposed an amendment for the sector that is yet to be approved.

2.4.4 PIG GENETICS

The evolution of pig production in recent years is linked to the advancement of biotechnology. Currently, in addition to traditional pig breeds specialized for piglet production with high meat yields, the market offers biotechnology-based hybrid lines that pass these features down to their offspring more efficiently.

The Peruvian pig market is influenced by the presence of three genetics providers: PIC, Topigs, and Hypor.

PIC has been in the country since 1986. Found in Huacho, north of Lima, it has a great-grandmother nucleus for the maternal line, and another nucleus for the paternal line. Additionally, two years ago it started distributing liquid genetics (semen doses for artificial insemination) from its boar studs, with 120 breeders in the only pig farm that has environmental control. It belongs to Grupo Redondos.

Topigs was first imported in 2009 without local representation by at least four farms to replace PIC.

Hypor began operations in 2017, when it installed its great-grandmother nucleus in the Ica Region with the Granja Huerto San Martín de Porres company. That same year, Corporación Rico in the Arequipa Region directly imported this line to replace the Topigs they had been working with since 2009 (before that, they had PIC).

2.4.5 MAIN PRODUCERS

Table 11 shows pig producing companies, the number of sows, as well as the contact person, location, and e-mail address.

Table 11 Pig farm directory

	BUSINESS NAME	APP MEMBER	No. OF SOWS	CONTACT PERSON	REGION	E-MAIL ADDRESS
1	Redondos S.A.	YES	19,000	Jorge Robles	Lima, Ica	jrobles@redondos.com.pe
2	Corporación Rico S.A.	YES	17,000	Javier López	Arequipa	javier.lopez@ri-copollo.com.pe
3	Avícola Yugoslavia S.A.C.	YES	7,500	Eduardo Nestorovic	La Libertad	ynestorovic@yahoo.com
4	Granja Huerto San Martín de Porres	YES	4,000	Martín Palomino	Lima, Ica	martin.palomino@gmail.com
5	Granja Los Huarangos	YES	2,600	Gustavo Robinson	Lima, Ica	huarangos@hotmail.com
6	San Fernando S.A.	YES	2,500	Carlos Collado	Lima	ccollado@san-fernando.com.pe
7	Negociación Pecuaria Santa Patricia	YES	2,400	Luis Felipe Noriega	Lima, Ica	lfnc@stapatricia.com
8	Agropecuaria Isamisa S.A.C.	YES	2,200	Miguel Alejo	Lima	malejo@isamisa.com.pe
9	Santo Martín S.A.C.	YES	2,100	Guillermo Vidal	Lima	diguivid@hotmail.com
10	Agroindustria Campoy S.R.L.	NO	1,500	Michael Wong	Huaral	mwong@agroindustriacam-poy.biz
11	Agropecuaria Wong S.A.C.	NO	1,500	Alfonso Yong	Huaral	agrowong@hotmail.com
12	Protein Group	NO	1,500	Francisco Ponce	Lima, Ica	fponce@tecavi.com
13	Agropecuaria La Providencia S.A.C.	YES	1,400	Reynaldo Ghiggo	Lima	laprovidencia-huaral@gmail.com
14	Agropecuaria San Martín S.R.L.	YES	1,300	Miguel Santillán	San Martín	gladysmarquez@donpollo.pe
15	Agropecuaria San Diego	YES	1,000	Martín Torrejón	Lima	agropecuaria-san-diego@hotmail.com
16	Granja Agropecuaria Inveragro	NO	1,000	Victoriano Rojas	Amazonas	vrvisalot@gmail.com
17	Granjas Amazónicas	NO	1,000	Holger Salinas	Madre de Dios	hsalinas@granjasamazonicas.com
18	Hy Genetics Peru S.A.C.	YES	1,000	Martín Palomino	Ica	martin.palomino@gmail.com
19	Negocios e Inversiones Agropecuarios S.A.C.	YES	1,000	Miguel Yzaga	Lima	myzaga@topsportintl.com
20	Super Pig S.A.C.	YES	1,000	Víctor Quispe	Arequipa	superpigsac@hotmail.com
21	UPB Word	NO	1,000	César Palacios	Lima	palacios@fasetron.com
22	Agropecuaria Bujiro Yonezawa S.A.	YES	800	Lucila Yonezawa	Lima	agropeby@hotmail.com
23	Agropecuaria Lock	NO	800	Freddy Lock	Huaral	agropecuarialock@hotmail.com
24	Agropecuaria San Ramón S.R.L.	YES	800	Cecilia Hinostroza	Lima	chinostroza@asr.com.pe
25	Inversiones Agropecuarias H C S.A.C.	NO	700	Arturo Cuba	Huaral	invagroup@hotmail.com
26	Agroindustria Aucallama S.R.L.	NO	600	Jorge Jhussey	Huaral	jjhussey@supermercado-candy.com

27	Agropecuaria KSC	NO	600	Sergio Wong	Huaral	carlosksc@hotmail.com
28	CICOPSAC S.A.C.	YES	500	Pedro Casas	Lima	p.casas@cicopsac.com
29	Granja Charles	NO	500	Charles Kristen	Ica	
30	Agropecuaria Izaguirre S.A.C.	NO	400	Felix Izaguirre	Huaral	
31	Agropecuaria Izla E.I.R.L.	YES	400	Yuan Izaguirre	Lima	
32	PIC Peru	YES	400	Jorge Martínez	Lima	jmartinez@picperu.com
33	Agropecuaria Pampa Flores S.A.	NO	300	Carlos Núñez	Huaral	cnunez@arsarep.com.pe
34	Corporación Solfab	NO	300	Fabian Solari	Huaral	corporacionsolfabsac@hotmail.com
35	Pecuaría Corzo	NO	300	Robert Corzo	Arequipa	rcorzoituza34@hotmail.com
36	Pecuaría Monzón	NO	300	Freddy Monzón	Arequipa	pecmonzon@yahoo.com
37	Perú Pork S.A.C.	NO	300	Augusto Cáceres	Ica	acaceres@perupork.com.pe
38	Avícola la Joya S.R.L.	NO	250	Ricardo Vilca	Arequipa	richard_vilca@speedy.com.pe
39	Granja Agropecuaria Sun Mi S.A.C.	YES	250	Manuel Norabuena	Lima	alock66@hotmail.com
40	Granja Marco Antonio	NO	250	Manuel Valdera	La Libertad	
41	Granja Orvil	NO	200	Gustavo Ortiz	Arequipa	gortiz@shaw.ca
42	Granja Porcina J.V.	YES	200	Javier Valera	Lima	sirespe@gmail.com
43	Agropecuaria Campo Real S.A.C.	YES	150	Lucy Puerta	San Martín	lucypuerta1@hotmail.com
44	Granja Carlos Cáceres	NO	150	Carlos Cáceres	Huaral	parquinchorolando@hotmail.com
45	Agropecuaria Doña Tota	NO	100	Luis Vilca Gómez	Arequipa	edvilca@speedy.com.pe
46	Agropecuaria El Remanso S.A.C.	NO	100	Percy Lora	Ica	
47	Agropecuaria Hidalgo S.A.	NO	100	Hidalgo Hiza	Cuzco	ahiza@yahoo.com
48	Granja Don Chevo	YES	100	Chego Salguero	Lima	
49	Granja Tuesta	NO	100	Carlos Tuesta	San Martín	luismo-reno90490@gmail.com
50	La Granja	NO	100	Miguel Angel Cuadros	Arequipa	lagranja_servicios@gmail.com
51	Pecuaría El Triunfo	NO	100	Carlos Castillo	Arequipa	c_casti29@hotmail.com
52	Pecuaría Pork S.A.	NO	100	Darwin Arispe	Arequipa	darwinarispe@yahoo.com
53	Pig Perú	NO	100	Verónica Román	Arequipa	pigperu@hotmail.com
54	El Lechón de Oro	NO	80	David Velásquez	Arequipa	el.lechon.de.oro@gmail.com
55	Ganadera El Milagro S.A.C.	NO	80	Santiago Burga	Lambayeque	daniburga@hotmail.com
56	Granja Camote	YES	80	Pedro Tasayco	Ica	camote_2_03@hotmail.com
57	Granja Maria Paula E.I.R.L.	NO	80	Moisés Arias	La Libertad	
58	Granja Piloto de Cerdos U.N.A.L.M	YES	70	Carmen Alvarez	Lima	chas@lamolina.edu.pe

SOURCE: PERUVIAN ASSOCIATION OF PORK PRODUCERS 2020

2.4.6 CHALLENGES AND OPPORTUNITIES FOR PIG PRODUCTION

Challenges:

- Land availability to ensure biosecurity and good quality water
- Backyard breeding close to mechanized farms
- Fragmented pig production
- High dependency on labor
- Increasingly scarce and poorly educated labor
- High-investment facilities
- Redesigning of facilities for animal welfare
- Live animal transportation in rented vehicles
- Live animal transportation in specialized vehicles, with trained and aware personnel
- Preventing the entry of African Swine Fever

Opportunities

- Breeding on 3 sites or even better, multi-site
- Becoming a specialized owner in one of the three phases of pig production
- Having pig genetics representatives
- Local governments promoting pig farming parks for semi-intensive breeding
- Standardizing health measures and controlling emerging diseases
- Favoring antibiotic-free pig breeding
- Managing farms in real time
- Applying the Brazilian pig production chain model (integration)
- Standardizing phases, processes, and nomenclature throughout the pig production chain
- Preparing for climate change
- Working on sustainability, environmental, social, and economic factors

2.5 SLAUGHTERHOUSES AND PACKERS

Table 12 shows the annual growth of slaughtered animals, the slaughtered volume, and the animal yield from the national pig total and pigs processed in slaughterhouses, both nationally and in Metropolitan Lima. This confirms that the city of Lima is the main domestic market with approximately 45% of the slaughtered volume due to the larger population and higher protein consumption in Lima. Similarly, it is observed that the live weight slaughtered in Lima has slowly increased by 13% up to 100 kg in recent years. It is difficult to increase the live weight even more because butchers claim customers do not buy "bigger" pork cuts.

Table 12 Annual evolution of pig slaughter

YEAR	NATIO- NAL UN	NATIO- NAL MT	Kg/Unit	IN SLAUGHTERHOUSES					
				NATIO- NAL UN	NATIO- NAL MT	Kg/Unit	METROP. LIMA UN	ME- TROP. LIMA MT	Kg/Unit
2012	2,401,633	122,352	50.9	1,599,829	95,826	59.9	767,182	50,075	65.3
2013	2,499,032	127,685	51.1	1,831,541	110,014	60.1	875,255	57,304	65.5
2014	2,629,566	135,393	51.5	1,889,773	116,142	61.5	892,131	59,737	67.0
2015	2,764,884	142,927	51.7	1,829,016	116,257	63.6	868,815	60,204	69.3
2016	2,876,803	149,399	51.9	1,928,215	124,394	64.5	908,816	63,662	70.0
2017	3,073,656	157,823	51.3	2,007,199	131,519	65.5	950,421	67,417	70.9
2018	3,090,907	162,421	52.5	2,015,636	134,306	66.6	987,246	71,176	72.1
2019	3,284,607	173,258	52.7	2,101,612	141,557	67.4	1,054,758	77,874	73.8

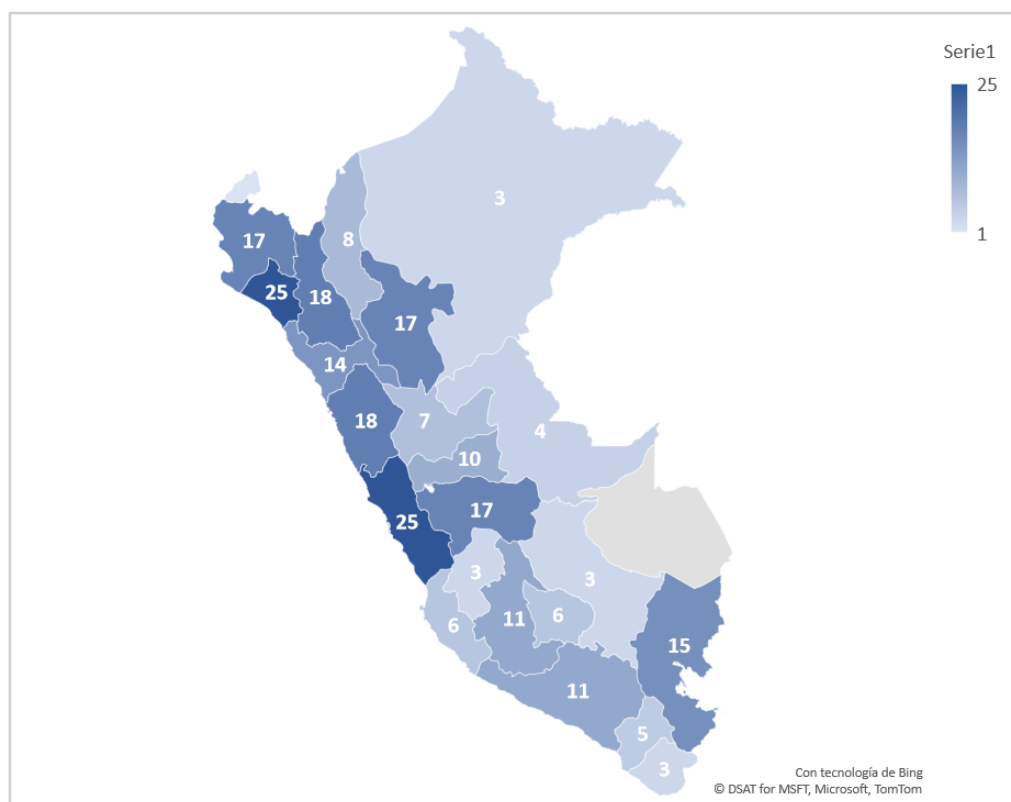
SOURCE: ADAPTED FROM MINAGRI'S STATISTICAL YEARBOOK OF LIVESTOCK AND POULTRY PRODUCTION 2019

It should be noted that the yield of slaughtered pigs is approximately 75% (for 100 kg live weight), and that according to SENASA's Health Regulation for animal slaughter, a pig carcass is defined as the animal slaughtered with skin, head and feet, but no offal.

2.5.1 PRESENCE AND LOCATION

Figure 10 shows Peru's 250 slaughterhouses by region. As described in Table 13, almost 80% are municipal slaughterhouses, generally with poor infrastructure, and 20% are private. Similarly, it is noted that 73.6% of slaughterhouses are category 1, i.e., with an installed capacity of less than 20 pigs per day, or its equivalent in other species, and preferably for local use. Slaughterhouses from category 2 and 3 are 21.6% and 4.8% of the total, respectively, and they have a higher processing capacity and better equipment, and both are for local, regional or national use, but category 3 could also be designated for exports.

Figure 10 Total slaughterhouses by region in Peru



SOURCE: ADAPTED FROM SENASA

Table 13 Slaughterhouses by type and category in Peru

SLAUGHTER-HOUSE	MUNICIPAL	PRIVATE	TOTAL	%
Category 1	164	20	184	73.6%
Category 2	35	19	54	21.6%
Category 3		12	12	4.8%
TOTAL	199	51	250	100.0%

SOURCE: ADAPTED FROM SENASA

It should also be noted that there are three slaughterhouses for pigs only. One of them features vertical integration and is a poultry and pork producer that manufactures sausage, with the capacity to slaughter 464 pigs a day. The second, vertically integrated as well, also sells pork cuts at its own brand stores, with a capacity for 450 pigs a day. The third one belongs to a sausage factory that imports and buys live animals, with a capacity of 200 pigs per day, according to data from SENASA.

The rest of the slaughterhouses, especially the private ones, provide slaughtering services to pig producers for a fee of around 30 to 35 Peruvian Soles per unit (approximately 9 USD), plus the offal (red and white entrails, and edible appendices).

2.5.2 MAIN SLAUGHTERHOUSES

Table 14 shows the main pig slaughterhouses, including Camal Frigorífico Don Goyo S.A.C. from the Arequipa Region and Frigorífico La Colonial S.A.C. in the city of Lima. It should be noted that according to the APP, the only slaughterhouse certified for exports in Peru is Frigorífico Jo S.A.C.

Table 14 Main pig slaughterhouses in Peru

	REGION	COMPANY	SPECIES	CAPACITY
1	Arequipa	Corporación Rico S.A.C.	Pigs	450
2	Arequipa	Camal Frigorífico Don Goyo S.A.C.	Bovine, pig, sheep	959
3	La Libertad	Yugo Frío S.A.C.	Pigs	464
4	Lima	Frigorífico Jo S.A.C.	Bovine, pig, sheep, goat	200
5	Lima	Inversiones Pecuarias Lurin S.A.	Bovine, pig, sheep, goat	370
6	Lima	Camal Frigorífico Lurin S.A.C.	Bovine, pig	400
7	Lima	Camal Conchucos S.A.	Bovine, pig	350
8	Lima	Frigorífico La Colonial S.A.C.	Bovine, pig	600
9	Lima	Sociedad Suizo Peruana de Embutidos S.A. (SUPEMSA)	Pigs	204

SOURCE: ADAPTED FROM SENASA

2.5.3 PROCESSING COMPANIES

In Peru, there are few pork processing plants, also known as "cutting centers." They are mainly pork producers with store chains and/or sausage factories who can serve the HORECA channel. These companies are shown in Table 15. It is worth mentioning that with the exception of Rico stores (located in the south of the country and based in the Arequipa Region), all the others are located in the city of Lima. In addition, it should be noted that the production volume they handle is low and not registered by either SENASA or the APP.

Table 15 **Main pork processing plants**

	COMPANY	CHAIN STORES	BRAND
1	San Fernando S.A.	San Fernando	San Fernando
2	Corporación Rico	Rico	Rico
3	Redondos S.A.		Redondos
4	Agroindustria Campoy S.R.L.	Candy	Cerdeña
5	Agropecuaria Isamisa S.A.C.	Isamisa Market	Isamisa
6	Sociedad Suizo Peruana de Embutidos S.A.		Otto Kunz
7			La Segoviana

SOURCE: CREATED BY THE AUTHOR

It is worth noting that supermarkets buy pork carcasses that they cut at their own facilities to sell at their stores.

2.5.4 CHALLENGES AND OPPORTUNITIES IN SLAUGHTERHOUSES AND PACKERS

Challenges:

- Non-compliance with biosecurity standards
- Poor infrastructure for unloading live animals
- Standardizing pre-slaughter management
- Improving the desensitization system for slaughtering, according to animal welfare
- Lack of control and awareness about washing and disinfection of vehicles that carry live animals when leaving the slaughterhouse
- High dependency on labor
- Increasing slaughter weight, as the yield is under its genetic and economic potential
- Slaughtering capacity does not meet pig production growth
- Non-standardized pork cuts
- Private slaughterhouses only provide the service; they do not buy pigs from producers

-
- Poor cold chain in slaughterhouses
 - Carcass transport in informal vehicles, with no cooling
 - Untrained personnel for carcass transport

Opportunities:

- Construction by producers of modern slaughterhouses for pigs only, which comply with future animal welfare, environmental, and exporting regulations
- Developing packinghouses: slaughterhouses and cutting centers
- Improving slaughter oversight and control by SENASA
- Updating municipal slaughterhouses

2.6 SAUSAGE MANUFACTURERS

2.6.1 SAUSAGE PRODUCTION AND RAW MATERIAL USED

Peru consumes the lowest amount of sausage in the region, only 2.5 kilos per person a year. In Ecuador, for example, that figure is two times higher, three times in Chile, and four in Argentina.

Sausage and prepared meat production in 2019 was 77,667 tons, 13.6% less than in 2018 after the roll out of nutritional "octagons," warning signs on the labels of processed foods and beverages with an excess of saturated fats, sodium, sugar, or which contain trans fats, according to the parameters set by the Peruvian Ministry of Health (Minsa).

The most consumed sausage in Peru are hot dogs or frankfurters, with 32,266 tons (41.5%) followed by ham with 22,931 tons (29.5%), and spicy sausage (*chorizo*) with 7,347 tons (9.5%), as shown in Table 16.

Table 16 Sausage and prepared meat production (tons)

	2017	2018	2019
Smoked meat	1,715	1,826	2,023
Spicy sausage (<i>chorizo</i>)	6,969	7,997	7,347
Hot Dog	31,159	41,746	32,266
Ham	7,191	9,217	8,919
Deli ham meat (<i>jamonada</i>)	12,680	15,360	11,936
Mortadella	2,978	2,631	2,021
Pork pie	49	52	54
Pâté	564	377	576
Head cheese	35	33	43
Pressed pork rind (<i>chicharrón</i>)	738	642	387
Salami	199	211	224
Burger	7,221	5,977	8,031
Prepared meat	1,785	2,330	2,279
Others	1,730	1,534	1,561
TOTAL	75,011	89,934	77,667

SOURCE: MONTHLY STATISTICAL BULLETIN "AGRICULTURE IN FIGURES," MINAGRI 2019

It should be noted that the figures refer to the total market for sausage and prepared meat in Peru. Table 17 shows that pork's share of sausage and prepared meat production in 2019 was 52.9%, while poultry and industrial meat represented 24.9% and 22.2%, respectively.

Table 17 Raw material for the production of sausage and prepared meat (tons)

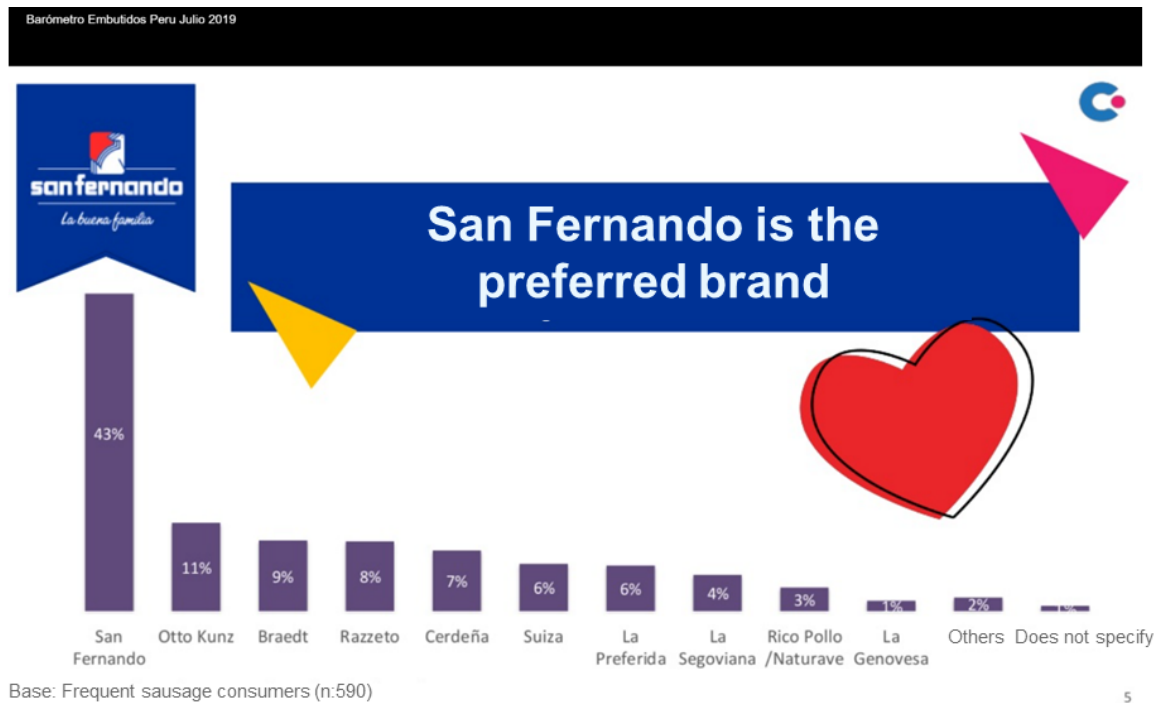
RAW MATERIAL	2017	2018	2019
Industrial meat	10,616	9,656	10,426
Pork	20,648	21,384	24,803
Poultry	9,720	13,216	11,697
Cornstarch	2,350	2,131	2,749
Salt	853	868	891
Others	1,574	1,590	2,129

SOURCE: MONTHLY STATISTICAL BULLETIN "AGRICULTURE IN FIGURES," MINAGRI 2019

2.6.2 MAIN SAUSAGE MANUFACTURERS

There are no official figures on sausage manufacturing volume by brand. However, there is a strong correlation between the volume produced and the preferred brands. Figure 11 shows that the factories with the highest market share are San Fernando (43%), Otto Kunz (11%), Braedt (9%), Razzeto (8%), and Cerdeña (7%).

Figure 11 Preferred sausage brands in Peru 2019



SOURCE: CONSULTING PARTNERS, MARKET RESEARCH COMPANY

The report entitled "The sausage and ham market in Peru" carried out for the Spanish Embassy in Lima identifies the main sausage manufacturers, their brands, and specific type of customer, as described in Table 18.

Table 18 **Main sausage brands and market segments**

COMPANIES	BRANDS	MARKET SEGMENT
Fábrica de embutidos Walter Braedt S.A.	Braedt	Middle-high income
Laive S.A.	Laive	Middle-high income
	La Preferida	Middle-low income
Sociedad Suizo Peruana de Embutidos	Otto Kunz	Middle-high income
	La Segoviana	Middle-low income
Salchicería Alemana Wilde & Kuhn	Salchicería Alemana	Middle-high income
Productos Razzeto y Nesterovic S.A.C	Razzeto	Middle-high income
San Fernando S.A.		Middle income

SOURCE: ECONOMIC AND COMMERCIAL OFFICE OF THE EMBASSY OF SPAIN IN LIMA

2.6.3 CHALLENGES AND OPPORTUNITIES IN SAUSAGE MANUFACTURING

Challenges:

- Price of imported meat when there is surplus in the international market
- Demand for chicken and turkey sausages
- Use of quality raw material
- Healthy food

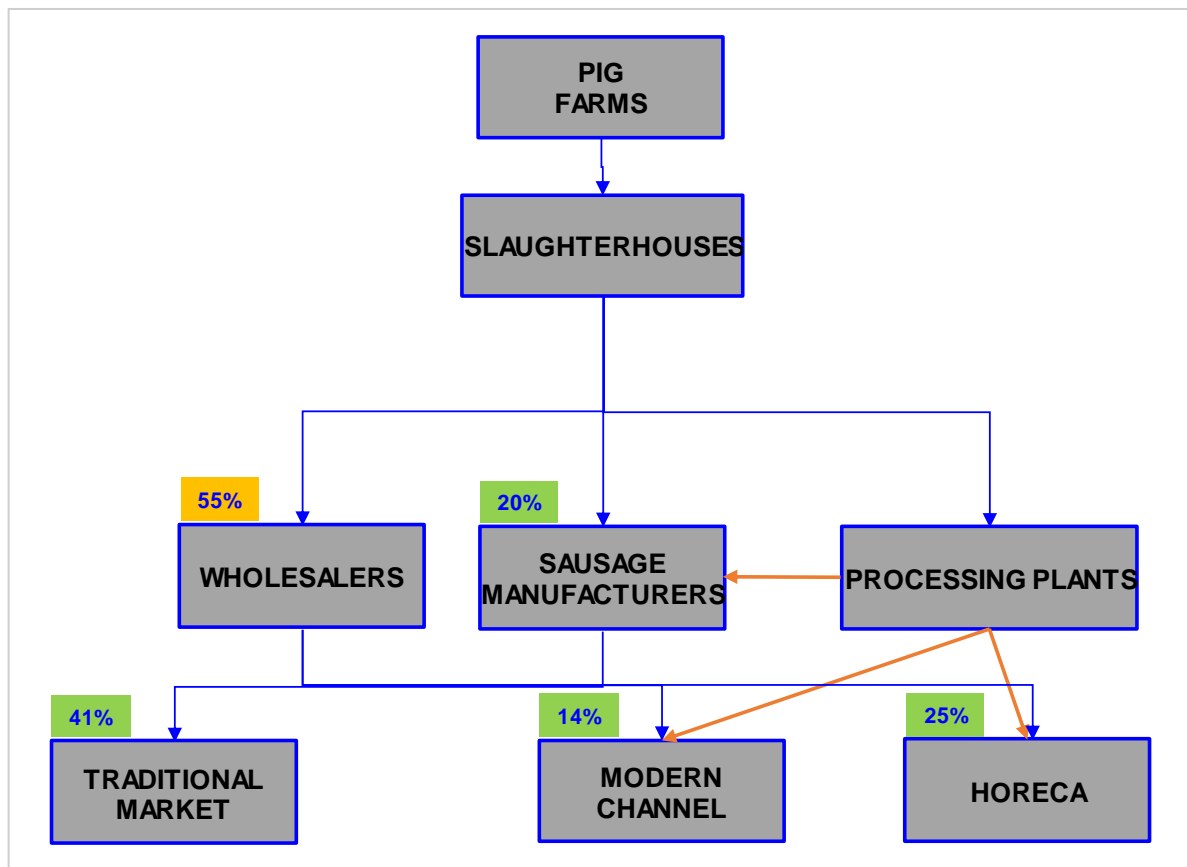
Opportunities:

- Low per capita consumption

2.7 DISTRIBUTION CHANNELS

Pork trading in Peru involves various actors, such as the producer, who reaches distribution channels mainly via slaughterhouses, as shown in Figure 12.

Figure 12 Pork trading



SOURCE: PERUVIAN ASSOCIATION OF PORK PRODUCERS

Wholesalers, also known as intermediaries, trade the highest volume of meat, about 55%. Just like with chicken, they can influence prices, both the price paid to producers and the price consumers pay.

2.7.1 TRADITIONAL MARKET

The traditional market is mainly made up of market stalls and convenience stores, also known as corner shops, and it continues to be the preferred channel in the Peruvian market. It sells three times more than the modern channel (*El Comercio* Newspaper, August 13th, 2020).

The APP estimates that 41% of pork volume is sold in the traditional market.

The advantages of this channel are:

- Proximity: the consumer wants convenience, as time is limited. Therefore, they prefer buying in nearby stores and saving the cost of transportation or parking.
- Relationship with the seller: on many occasions, the consumer has a close relationship with the store owner, who is often a neighbor, relative, or well-known around the neighborhood. This creates more intimacy and ease when purchasing, as well as offering flexibility in payments.
- Prices: in the traditional channel, the buyer trusts the seller, and they often take the products and pay later, if this is agreed to with the store owner. This is seen as an advantage for consumers, who can better organize their shopping.
- Tradition: in markets like Peru, going "to the corner shop" for groceries or snacks is a tradition. The experience remains a tradition, although it needs to be updated to improve consumption.

Many believe that a main challenge for this channel is the informality that hinders financing, information technology solutions, and integration with the market.

2.7.2 HORECA

The HORECA channel is made up of hotels, restaurants, and catering services, and it has grown thanks to the gastronomic industry boom, the growth of the tourism sector, and the entrepreneurship culture of Peruvians. According to the INEI, it represents 7.5% of total economic activity in Peru.

In 2019, the hotel sector included 23,900 establishments (it grew by 65% in 10 years), with 311,000 rooms and 541,500 beds (Ministry of Foreign Trade and Tourism, MINCETUR, 2020).

It is estimated that there are 220,000 establishments that sell food and beverages (Lima Chamber of Commerce, CCL, 2020) with a high level of informality since about 60,000 are ranked restaurants (from one to five forks) and only 800 (1.2%) are authorized by the Ministry of Health (*Gestión* Newspaper, December 8th, 2020). The preferred restaurants are the ones that serve grilled chicken and burgers, as well as *chifas* (a fusion of Chinese and Peruvian food), and *cevicherías* (specialized in raw fish marinated in lemon juice).

The APP estimates that 25% of the pork volume is sold in the HORECA channel.

2.7.3 SAUSAGE MANUFACTURERS

Section 2.6 provided a detailed explanation about sausage factories in Peru, while highlighting that according to APP estimates, 20% of pork volume is traded via sausage factories.

2.7.4 MODERN CHANNEL

The modern market is mainly made up of supermarkets, self-service stores, and chain stores, which are slowly rising, driven by the growth of the middle class. But they are associated with stock-up and replenishment shopping.

The main supermarket chains are:

- Supermercados Peruanos, with the brands Vivanda (8 stores), Plaza Vea (108 stores), and Mass (303 stores), with 34% of the share.
- Cencosud, with the brands Wong (16 stores) and Metro (70 stores), with a 32% share.
- Falabella, with the Tottus brand (89 stores) and a 30% share.

The main self-service and convenience store chains are Tambo, Listo, Oxxo, Pecsá, and Repshop (peru-retail.com).

The main chain stores related to pork and/or sausage sales are the ones listed in Table 15, i.e., San Fernando, Rico, Candy, and Isamisa Market.

The APP estimates that 14% of pork volume is sold in the modern channel.

2.7.5 CHALLENGES AND OPPORTUNITIES FOR DISTRIBUTION CHANNELS

Challenges:

- High rates of informal trading
- Simplifying distribution channels to reduce commercial cost
- Exporting with no ractopamine or antibiotics
- Standardizing products for the entire commercial chain, including potential exports
- Implementing export logistics
- Health restrictions for exports
- Getting rid of the bad reputation or myths about the product: fed with garbage, trichinella-infected, too high in fat and cholesterol
- Competing with chicken prices
- Emergence of alternative proteins, the new competitor

Opportunities:

- Low per capita pork consumption
- Implementing specialty pork stores
- Increasing sales in the modern channel and reducing wholesaler share
- Higher household income
- Implementing positive communication with consumers

-
- Working together for exporting
 - Initially exporting primal cuts
 - Implementing strategies to stand out
 - Reinforcing the product's image: tasty product, easy to use in various dishes, affordable (compared to beef), and filling
 - Four out of five of the most successful dishes in gastronomic festivals are pork-based
 - Producing foods with added value, precooked, and flavored
 - Applying the blockchain model to the pork production chain

3 PERUVIAN ASSOCIATION OF PORK PRODUCERS

3.1 MISSION

To bring together Peruvian pig farmers and represent them, while promoting the sustainable development of the sector with proposals that increase competitiveness and profitability, and being socially responsible and conserving and protecting the environment.

3.2 VISION

In 2021, the Peruvian Association of Pork Producers will become a nationally and internationally recognized organization that will represent all producers and promote an increase in per capita consumption of pork and its by-products in Peru, as well as the exporting of Peruvian products.

3.3 GOALS

The main goals of the Association are:

- To represent the interests of pig farmers with various public and private authorities
- Provide veterinary technical assistance to member farms
- Train associates and the pork community on an ongoing basis
- Carry out advertising campaigns to increase pork consumption

3.4 ORGANIZATION AND FINANCING

The Association is led by General Manager, Ana María Trelles, and the Chairman of the Board is Guillermo Vidal.

The Association's financing comes from two main sources: a monthly fee paid by every member of 2.00 Peruvian Soles (approximately 0.55 USD) per inventoried sow, and the training courses organized by the Association.

The Association's expenses are mainly managerial, plus the financing of the "Eat pork, eat healthy" campaign (*Come cerdo come sano*), a contribution for purchasing vaccines against CSF for rural and self-consumption breeders, and the pilot PRRS Control plan.

3.5 MILESTONES

The main milestones in the Association's history are:

1984	Creation of the emergency Ad-Hoc Pig Farming Committee
1986	Creation of the Association to represent pork producers nationwide
1992	Signature of an inter-institutional cooperation agreement with SENASA
2004	Representing the Association with the negotiating team of Free Trade Agreements with the United States, Mexico, the European Union, Canada, South Korea, Japan, and China
2010	Roll-out of the national program to control and eradicate Classical Swine Fever implemented by SENASA
2011	Official declaration of the National Pork Rind (<i>chicharrón</i>) Day (third Saturday in June)
2013	Launching of a radio campaign in RPP Noticias to promote pork consumption
2017	Launching of the consumer education campaign EAT PORK, EAT HEALTHY
2017	Roll-out of the pilot PRRS Control Plan in the Huaral and Huaura Provinces
2019	Became part of the Latin American Council of Animal Protein (COLAPA)

3.6 MAIN MEMBER DIRECTORY

Table 19 shows the directory of members with more than 1,000 sows and their share.

Table 19 Member directory 2020







	COMPANY	CONTACT PERSON	E-MAIL ADDRESS	No. OF SOWS	%	CUM %
1	REDONDOS S.A.	Jorge Gutiérrez	jgutierrez@redondos.com.pe	19,000	27.2%	27.2%
2	CORPORACIÓN RICO S.A.C.	Javier López	javier.lopez@ricopollo.com.pe	17,000	24.4%	51.6%
3	AVICOLA YUGOSLAVIA S.A.C.	Eduardo Nestorovic	yugoave@yugoave.pe	7,500	10.8%	62.4%
4	GRANJA HUERTO SAN MARTÍN DE PORES	José Barranca	jbarranca@granjahuertosanmartin.com	4,000	5.7%	68.1%
5	GRANJA LOS HUARANGOS S.A.	Gustavo Robinson	huarangos@hotmail.com	2,600	3.7%	71.8%
6	SAN FERNANDO S.A.	Sergio Gonzáles	sgonzales@san-fernando.com.pe	2,500	3.6%	75.4%
7	NEGOCIACIÓN PECUARIA SANTA PATRICIA S.A.	Felipe Noriega	lfnc@stapatricia.com	2,400	3.4%	78.9%
8	GRUPO ISAMISA S.A.C.	Félix Alejo	falejo@isamisa.com.pe	2,200	3.2%	82.0%
9	SANTO MARTÍN S.A.C.	Guillermo Vidal	diguivid@hotmail.com	2,100	3.0%	85.0%
10	AGROPECUARIA LA PROVIDENCIA S.A.C.	Pablo Ghiggo	central@agropecuarialaprovidencia.com	1,400	2.0%	87.0%
11	AGROCORPORACIÓN SAN DIEGO	Martín Torrejón	agropecuaria_sandiego@hotmail.com	1,000	1.4%	88.5%
12	HY GENETICS PERÚ	José Barranca	jbarranca@granjahuertosanmartin.com	1,000	1.4%	89.9%
13	NEGOCIOS E INVERSIONES AGROPECUARIOS	Miguel Yzaga	myzaga@me.com	1,000	1.4%	91.3%
14	SUPER PIG S.A.C.	Victor Quispe	superpigsac@hotmail.com	1,000	1.4%	92.8%

SOURCE: PERUVIAN ASSOCIATION OF PORK PRODUCERS

4 USEFUL LINKS

Table 20 shows useful links that support part of this work and may contain more information.

Table 20 Useful links

INSTITUTION	URL	LOGO
PERUVIAN ASSOCIATION OF PORK PRODUCERS (APP)	https://www.asoporci.org.pe/	
EAT PORK, EAT HEALTHY CAMPAIGN	https://www.comecerdo-comesano.com	
MINISTRY OF AGRICULTURE AND IRRIGATION (MINAGRI)	https://www.gob.pe/minagri	
INTEGRATED AGRICULTURAL STATISTICS SYSTEM (SIEA)	http://siea.minagri.gob.pe/portal	
NATIONAL AGRARIAN HEALTH SERVICE (SENASA)	https://www.senasa.gob.pe/senasa/	
PERUVIAN BUREAU OF STATISTICS AND COMPUTING (INEI)	https://www.inei.gob.pe/	
ENVIRONMENTAL CERTIFICATION NATIONAL SERVICE (SENACE)	https://www.senace.gob.pe/	
ADUANET	http://www.aduanet.gob.pe/	

SOURCE: CREATED BY THE AUTHOR

The Trade Council is the part of the Ministry of Foreign Affairs that performs tasks for private companies within export, innovation, internationalisation and investment promotion. The Trade Council is represented at the Ministry of Foreign Affairs at Asiatisk Plads in Copenhagen and at a number of Danish missions abroad.

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