

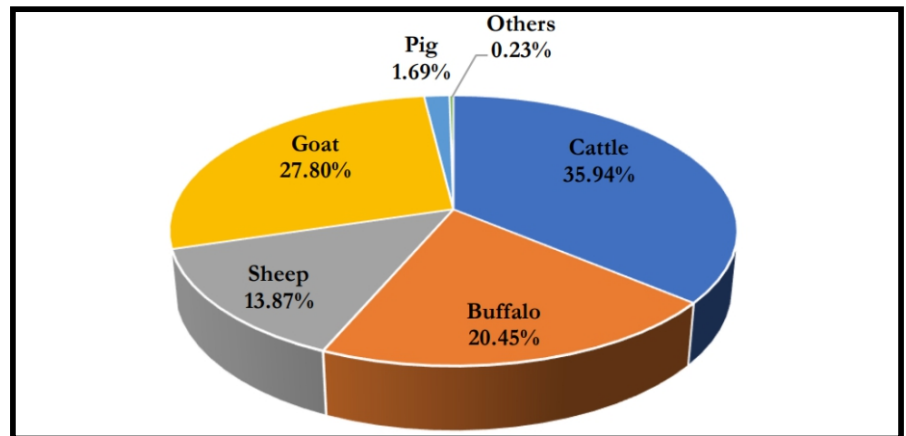
ANALYSIS REPORT

India's Piggery Sector



The piggery industry which contributes around 1.7% of the total livestock of the country plays an important role in providing livelihood and economic development for India's rural population. India has one of the largest shares in livestock wealth but the piggery sector which plays a crucial role in the faster socio-economic growth of the country has a relatively low population share as per the census 2019.

Major Livestock Population Share as per Livestock Census 2019



Source: <https://dahd.nic.in/sites/default/files/Key%20Results%2BAnnexure%2018.10.2019.pdf>

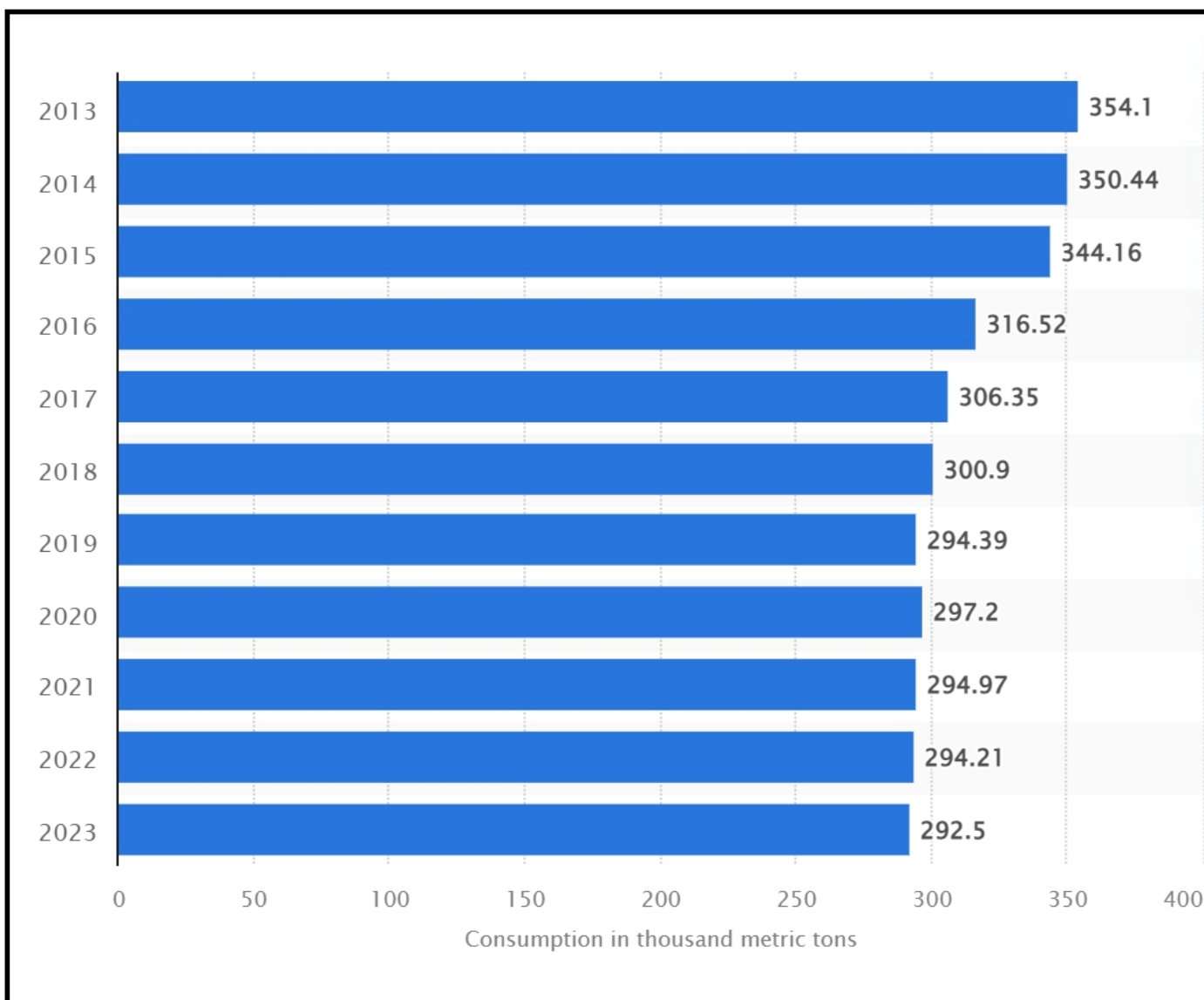
Pig farming does not involve extensive equipment and infrastructure but due to high fecundity, early maturity, and better feed conversion efficiency within short generation intervals, it is a popular livelihood choice in the weaker sections of the society especially in the Northeastern region of the country.



Source: <https://dahd.nic.in/sites/default/files/Key%20Results%2BAnnexure%2018.10.2019.pdf>

The pig is one of the important livestock species to be reared being the source of good revenue generation of landless farmers from disadvantaged class of farmers. The piggery sector majorly depends on the indigenous pig population in India. As the pork demand increases over time, the piggery sector is also receiving special attention from the government of India and state government through various programs and dedicated missions such as the National Livestock Mission, Meghalaya Piggery Development Scheme, etc.

Yearwise Pork Consumption Statistics in India (In 1000 Metric Tonnes)

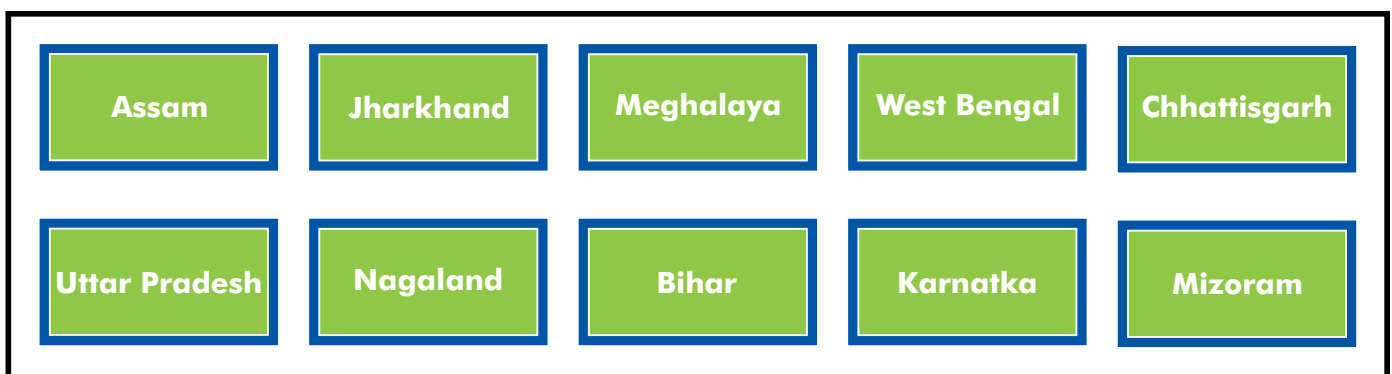


Source: <https://www.statista.com/statistics/826720/india-pig-meat-consumption/>

The Ministry of Animal Husbandry, Dairying & Fisheries, Government of India has also issued guidelines to formulate a State Pig Breeding Policy that will lead to genetic improvement and maintenance of crossbreed pigs at the farm level. It will also provide support for developing breeding infrastructure and piglet care management for the holistic development and growth of the piggery sector.

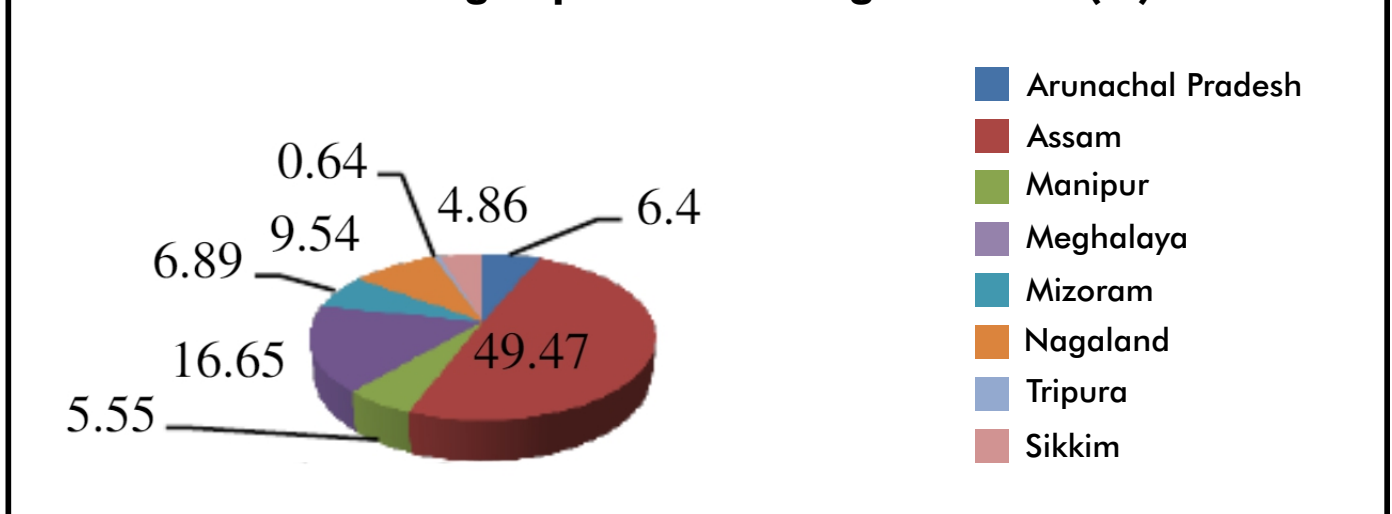
The global pig population as of 2022 has been recorded as around 784.20 million, whereas India's pig population has been recorded as 9.06 million in its 20th Livestock Census held in 2019. It shows a declining trend of 12% in the pig population from the 2012 Livestock Census which were previously showing an increasing trend in the 1966 and 1972 Census.

Major Pig Producing States



The share of indigenous species in the total pig population of India is 79% whereas 21% share has been contributed through exotic/ cross-breed animals. The highest pig-producing Indian state is Assam which contributes to 2.10 million pigs in India's total pig population followed by Jharkhand and Meghalaya.

Share in Pig Population among NE states (%)



Source: https://www.researchgate.net/publication/373096820_Status_and_trend_of_Piggery_sector_in_the_North_Eastern_region_of_India_A_critical_analysis/link/64d8611bad846e28828b8aa5/download?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uI19

Pig farming in India is majorly concentrated in rural areas of the northeast which contributes to 49% of the total pig population of the country and contributes to 894.04 Metric Tonnes export of pig products as per the data of APEDA in FY 2020-21.

Change in Pig Population

States	Year 2012			Year 2019			% Growth rate	% share in population during 2019
	Indigenous	Cross	Total	Indigenous	Cross	Total		
Arunachal Pradesh	318976	37369	356345	257785	13678	271463	-23.82	6.40
Assam	1022354	613668	1636022	1640760	458240	2099000	28.3	49.47
Manipur	94669	182546	277215	207772	27483	235255	-15.14	5.55
Meghalaya	409758	133623	543381	430311	276053	706364	29.99	16.65
Mizoram	32286	212952	245238	29404	263061	292465	19.26	6.89
Nagaland	122969	380719	503688	197605	207090	404695	-19.65	9.54
Sikkim	2451	27456	29907	15302	12018	27320	-8.65	0.64
Tripura	148891	213643	362534	101408	104627	206035	-43.17	4.86
NER	2152354 (54.43)	1801976 (45.57)	3954330	2880347 (67.89)	1362250 (32.11)	4242597	7.29	46.85
All India	7837306 (76.14)	2456389 (23.86)	10293695	7158544 (79.05)	1896944 (20.95)	9055488	-12.03	

Source: https://www.researchgate.net/publication/373096820_Status_and_trend_of_Piggery_sector_in_the_North_Eastern_region_of_India_A_critical_analysis/link/64d8611bad846e28828b8aa5/download?tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxyY2F0aW9uIiwicGFnZSI6InB1YmxyY2F0aW9uIj9

In India, **pigs contribute about 5% of the total meat production of the country**. The pork production has shown a growth scenario in 2019-20 whereas pig rearing in the Northeast region faces issues like lower production and reproductive performances over the years.

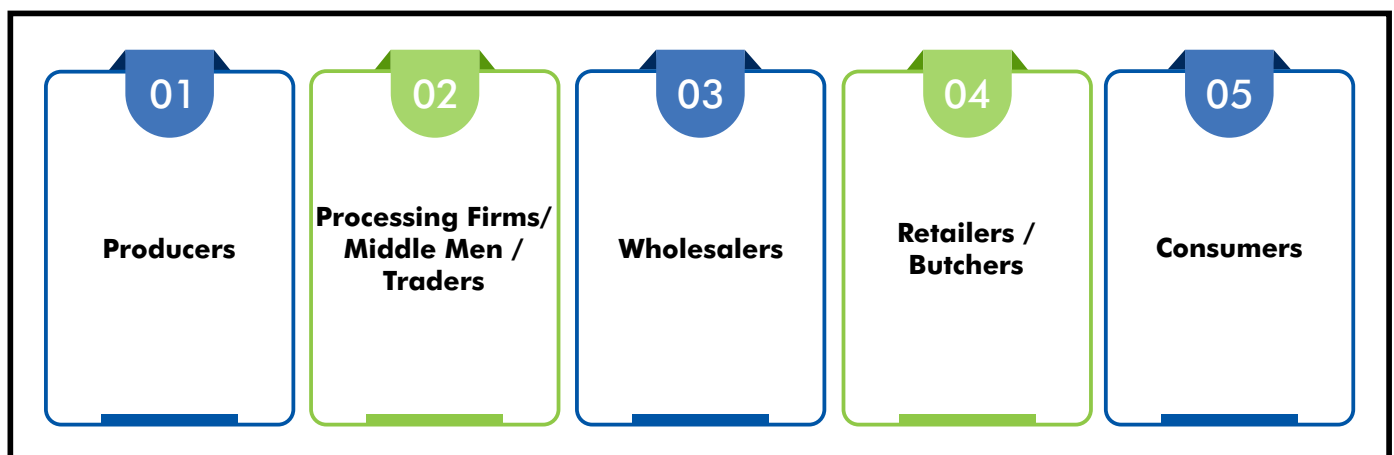
Yearwise Pork Production (NER Region in comparison to Total National Production)

Year	Pork production in India (numbers in lakh)	Pork production in NER (numbers in lakh)	NER share of pork production to the country's total (%)
2012 - 2013	453.05	85.02	18.77
2013 - 2014	486.03	113.21	23.29
2014 - 2015	464.11	-	-
2015 - 2016	387.55	76.5	19.74
2016 - 2017	468.8	82.56	17.61
2017 - 2018	395.97	85.42	21.57
2018 - 2019	404.46	85.1	21.04

Source: https://www.researchgate.net/publication/373096820_Status_and_trend_of_Piggery_sector_in_the_North_Eastern_region_of_India_A_critical_analysis/link/64d8611bad846e28828b8aa5/download?_tp=eyJjb250ZXh0Ijp7ImZpcnNOUGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19

In Pig farming, women's self-help groups play a crucial role. There are lots of opportunities for these SHGs in pork processing units and the entire value supply chain. **In the global meat consumed, the share of pig industry is about 40% including the use of their by-products.**

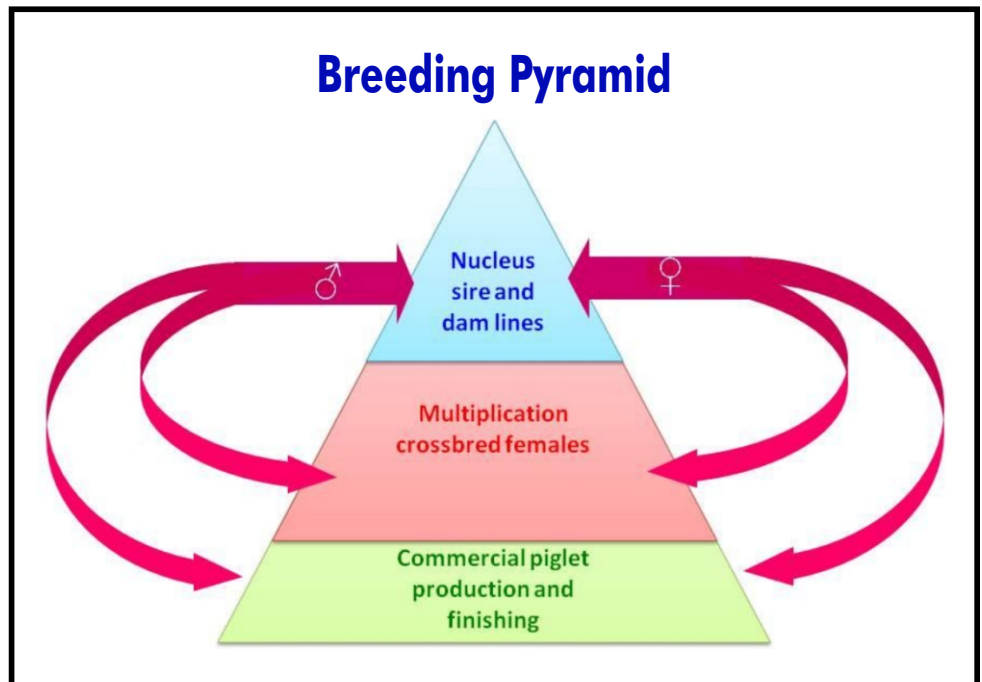
Stakeholders of Pork Value Chain



The SHGs in the piggery sector come up with brand-new pork products in the range of pickle, momo, smoked pork, sausage, etc. without making huge investments. Even the government under the National Livestock Mission has provision of credit support with subsidies from various financial institutions to strengthen the pork value supply chain at the grassroots level. This will encourage pig farming as a profitable venture for economically weaker sections, especially in the NER region for livelihood and employment.

03 Breeding and Care Management

Across the globe, pigs are known by different generic names such as hog, swine, boar, etc. But based on their gender, size, and breed, every pig has a unique name which becomes their identity in commercial pig farming. They are multipurpose animals and thus pig breeding is one of the main livelihood means where high economic returns are expected with low investments and restricted land availability.



Source: <https://dahd.nic.in/sites/default/files/National%20Guidelines%20for%20formulation%20of%20State%20Pig%20Breeding%20Policy.pdf>

The pig farming industry in India generally depends on indigenous breeds. However, the selection of breeds plays a major role in achieving success in the pig farming business. The industry demands piglets that grow faster and produce high-quality carcasses for high economic benefits. Such breeds also provide a higher meat percentage with a very little quantity of fat.

Indigenous Pig Breeds in India





Female: Ghungroo (State: West Bengal)



Male: Ghungroo (State: West Bengal)



Female: Tenyi vo (State: Nagaland)



Male: Tenyi vo (State: Nagaland)



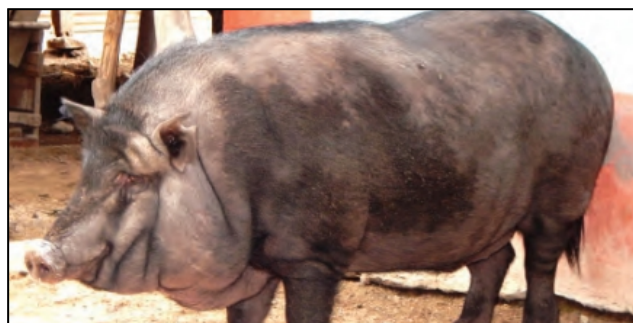
Female: Zovawk (State: Mizoram)



Male: Zovawk (State: Mizoram)



Female: Nicobari (State: Andaman & Nicobar)

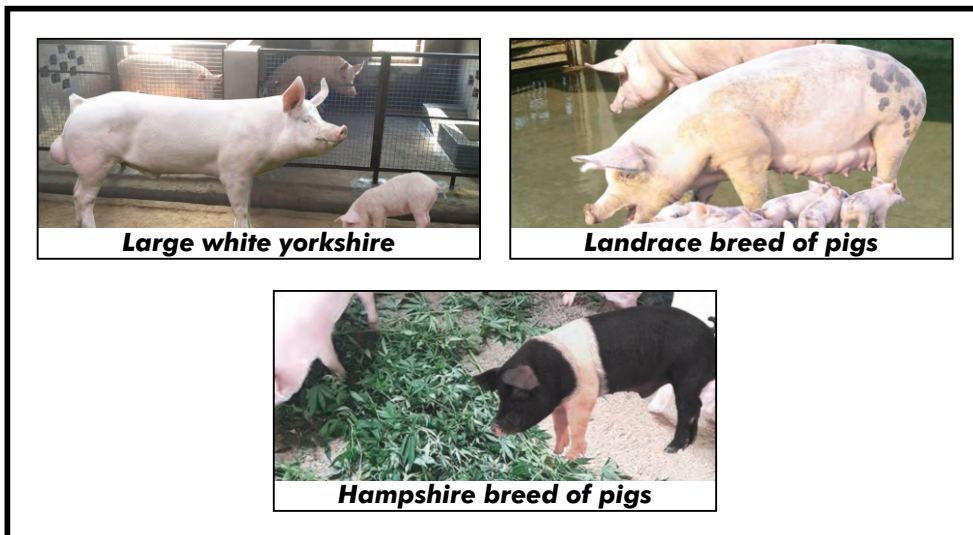


Male: Nicobari (State: Andaman & Nicobar)

Source: <https://atariz1.icar.gov.in/pdf/Pig%20farming.pdf>

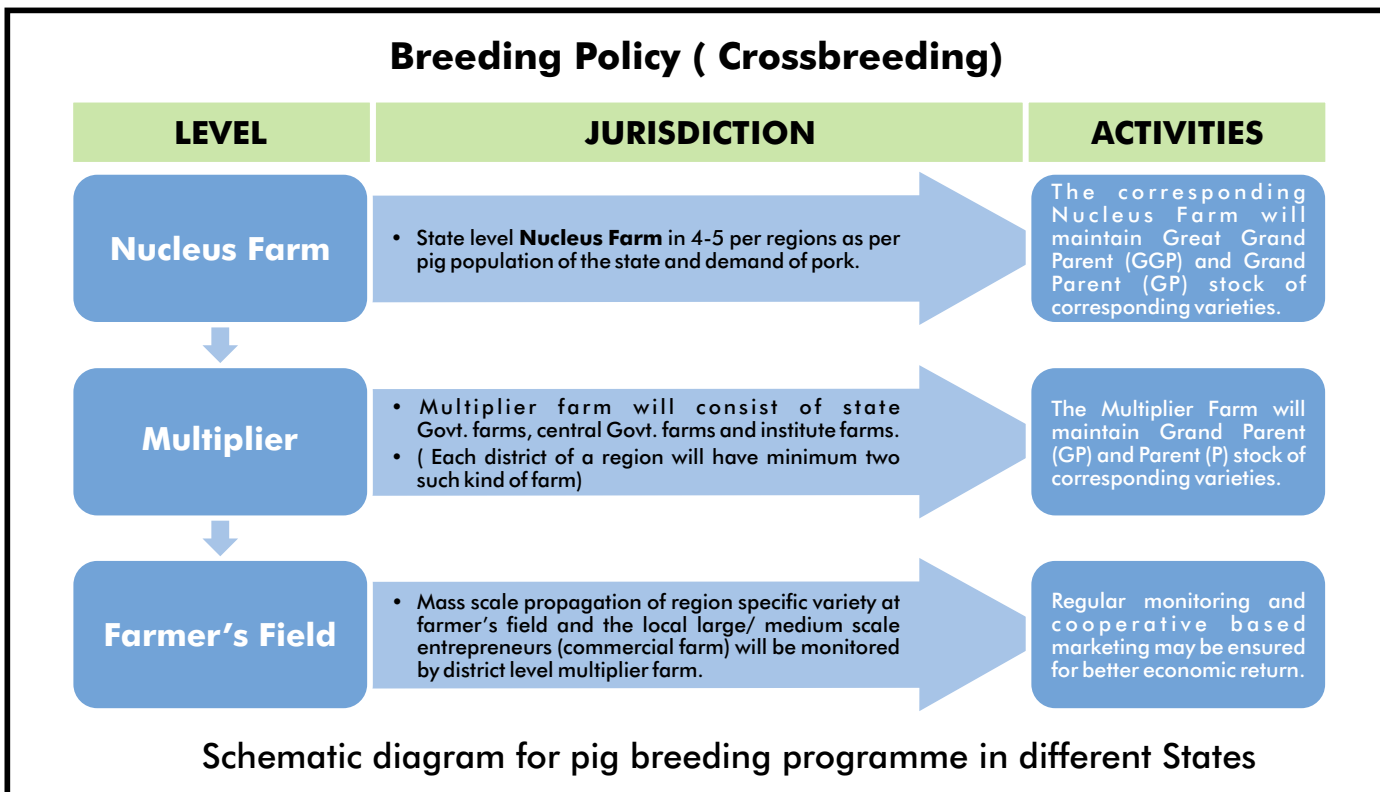
Over time, **pig farming has been made more profitable with the cross of exotic breeds**. However, non-systematic breeding and selection pose a major threat to the overall success of the cross-breeding process. It is mostly an unorganized venture and lacks science & technological advancement to further enhance the quality and production at the commercial level.

Exotic/Cross Breeds in Commercial Pig Production



To support commercial benefits in pig farming, the government is giving a major push through exotic pig breeding and developing big enterprises in the piggery sector. It will focus on the economical parameters of pig rearing to increase revenue and prepare to receive higher profits by focusing on high-yielding breeds.

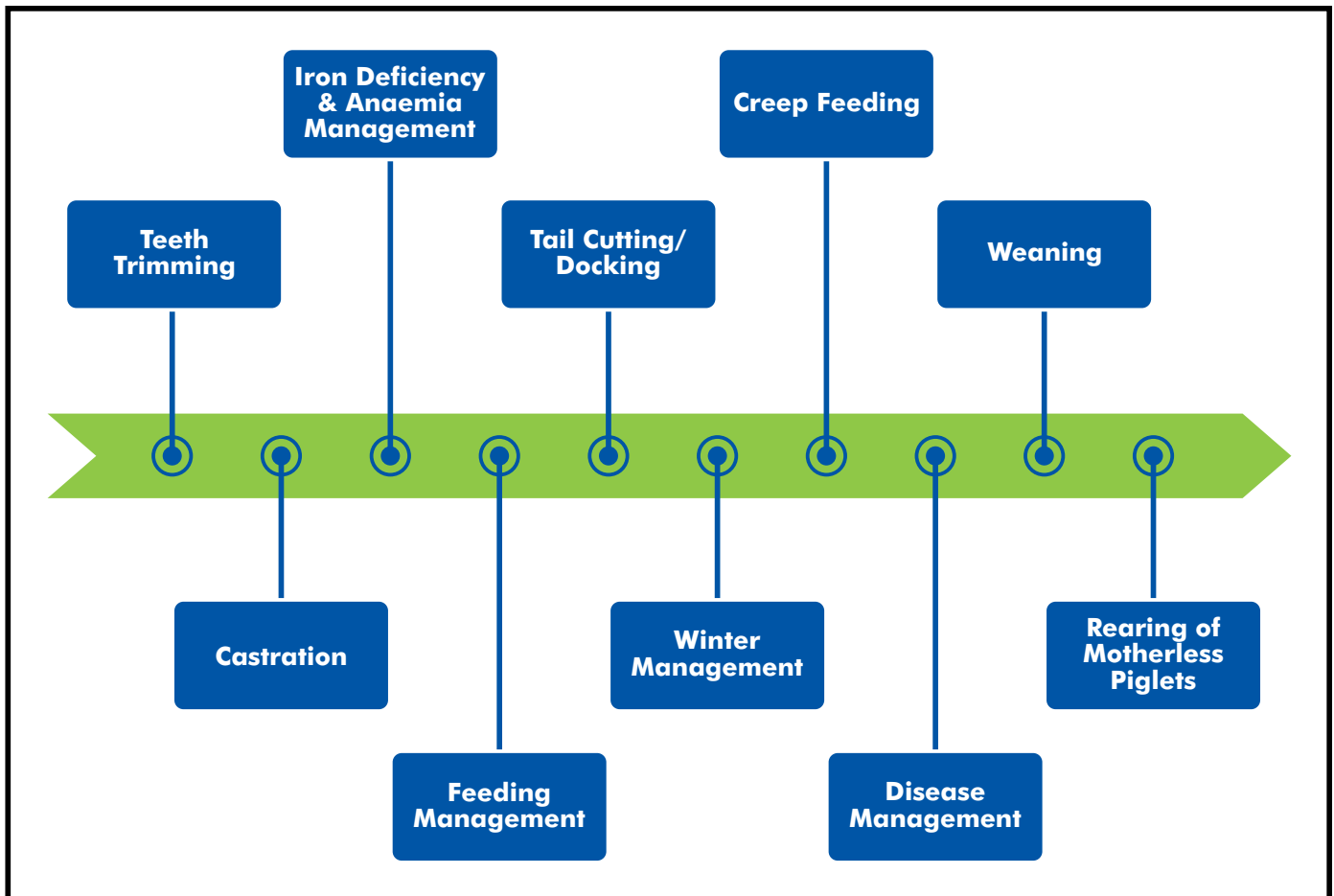
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Source: <https://dahd.nic.in/sites/default/files/National%20Guidelines%20for%20formulation%20of%20State%20Pig%20Breeding%20Policy.pdf>

In this regard, artificial insemination technology is adopted through big pig enterprises that will eventually help in enhancing the levels of reproductive care and nutritional management. Through careful systematic management, the longevity and fertility of the pigs increase and will add to the overall revenue of the piggery industry.

Management Practices Followed in Piglet Care



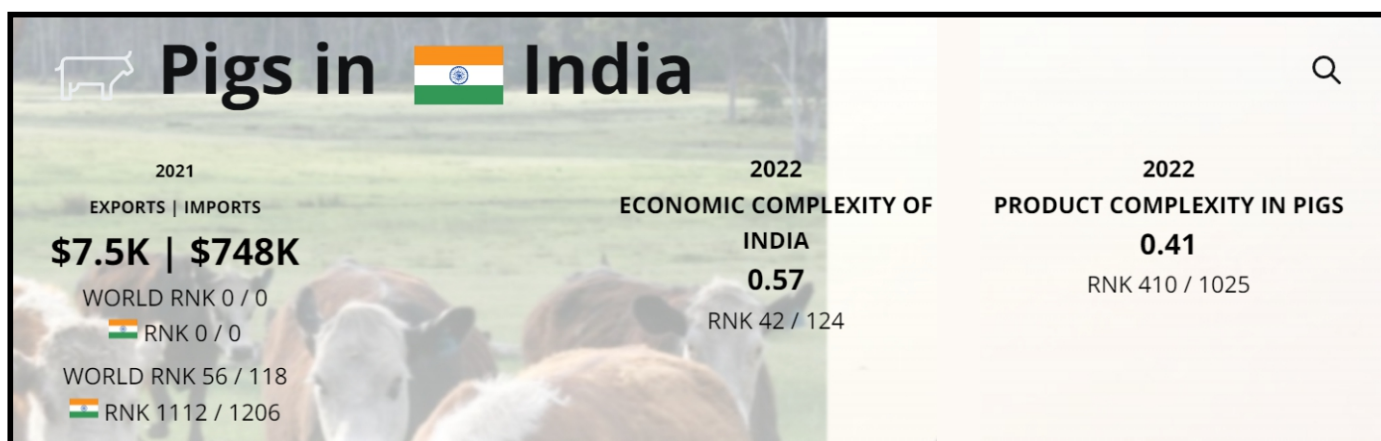
Thus, proper regular care during the first few weeks of the piglet's life will receive the utmost importance. Besides this, **the careful selection of pigs in the cross-breeding process is also a vital part of the growth of the piggery sector** and improves its commercial production to achieve a significant share of the global pig industry.

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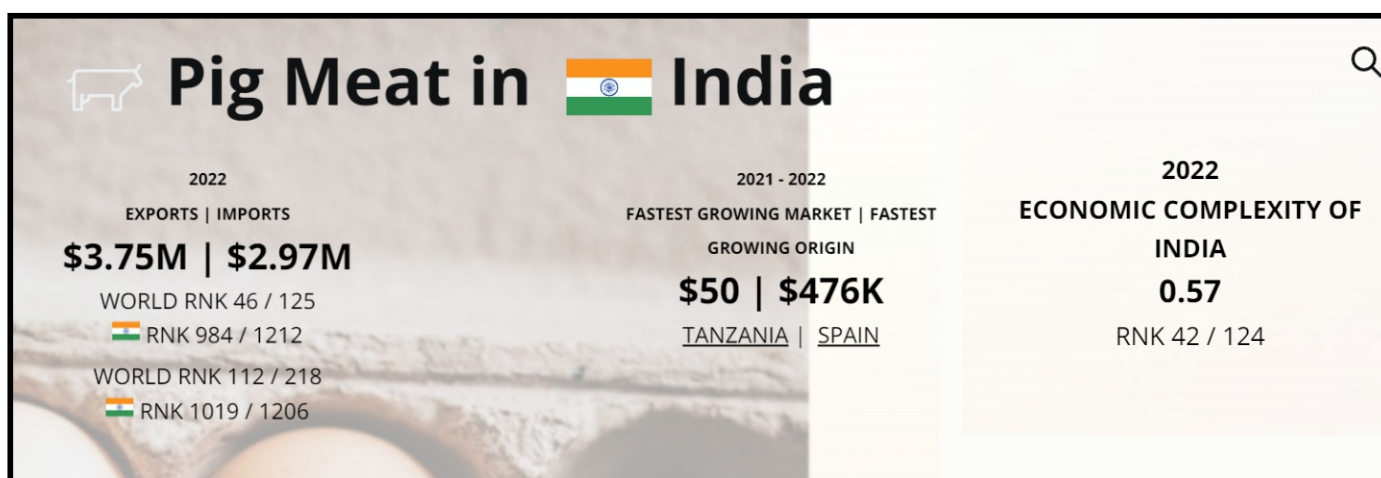
04 Economics Involved in Pig Farming

The Indian Piggery sector plays a crucial role in boosting India's economy and elevates the rural community's socio-economic well-being while contributing to its Gross Domestic Product (GDP). Pig farming involves the production, selling, and distribution of pork or its related products through the entire value supply chain within international trade policies, and respective government regulations. Continuous technological advancement is also a crucial part of commercial pig farming that can positively impact global market dynamics.



Source: <https://oec.world/en/profile/bilateral-product/pigs/reporter/ind>

The livestock sector has shown a CAGR (at constant price) of 7.9% between 2014 and 2021 to which the piggery sector has a significant part of it. The government has also added up 10 new breeds in the livestock sectors and made the tally to 212 as of January 2023 for which the Banda Pig from Jharkhand, Manipuri Black Pig, and Wak Chambil Pig from Meghalaya are also named.



Source: <https://oec.world/en/profile/bilateral-product/pig-meat/reporter/ind>

The India Piggery sector is loosely organized as around 70% of its population is reared in conventional ways by the communities hailing from economically weaker sections of society.

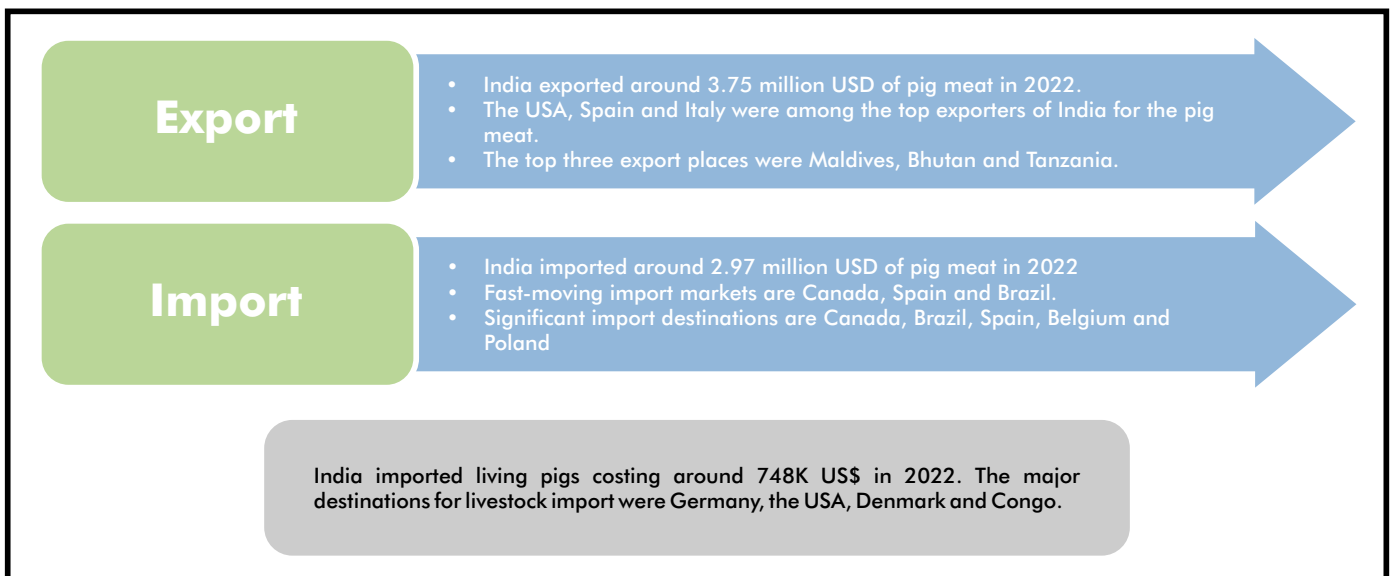
Piggery Sector Insights

Category	Population (In million) 2012	Population (In million) 2019	% Change
Pig - Total	10.29	9.06	-12.03
Exotic / Crossbreed	2.46	1.90	-22.76
Indigenous / Non- Descript	7.84	7.16	-8.66

Source: <https://vikaspedia.in/agriculture/agri-directory/reports-and-policy-briefs/20th-livestock-census>

The pig market valuation has been recorded around US\$ 2.9 billion in 2023. It is expected to receive growth of CAGR 1.5% in the next 5 years and is expected to become a US\$ 3.1 billion market by 2030.

Export-Import Statistics



In recent years, the demand for pork consumption has increased substantially showcasing significant growth prospects in the Piggery sector promising improvement in farmers' livelihoods and the sector's economic growth. Breeding management, nutrition, and disease control management will also play an important role in the economic well-being of the piggery sector and the local communities.

Pig farming in recent years has witnessed a significant transformation marking its presence as a vital part of the country's livestock sector. The introduction of advanced technologies, sustainable practices, and modernization of the sector promises growth if combined with an organized way of marketing, stable prices, and market volatility. Despite these, the sector has its respective challenges and opportunities to address to ensure future growth.

List of Identified Challenges in the Piggery Sector

Generic challenges

- Non- availability of superior germ plasm.
- High cost of quality feed.
- Emerging swine diseases.
- Improper waste management.
- Lack of easy access to training on scientific piggery.

Specific challenges

Challenges specific to backyard piggery

- Women who contribute major labour in farms lack decision making power.
- Social and Cultural barriers which restrict movements of women producers.
- Poor access to veterinary care and AI services

Challenges specific to commercial farms

- Difficulty in finding feed sources for maintaining the herd on daily basis.
- Handling of large volume of waste generated.
- Disease outbreaks.
- Transportation risks of pigs.

Challenges specific to value chains

- Unorganized meat markets.
- Countable number of processors.
- Unhygienic slaughter practices.
- Farmers not organized.
- Involvement of middlemen who determines prices.

Challenges specific to lack of scientific knowledge

- Losses due to inbreeding depression
- Losses due to untimely identification of heat
- Losses due to unbalanced feeding
- Losses due to improper biosecurity measures and healthcare.

Source: <https://www.aesanetwork.org/blog-173-uplifting-the-piggery-sector-in-india-role-of-eas/>

For pig farmers, the livelihood is bliss because they have high reproductive capacity boosting profitability. It requires a bare minimum investment in terms of infrastructure, support, and tools while attaining early maturity in terms of profits. Pig farming has an adequate feed conversion rate because of short generation intervals that positively impact the industry.

Opportunities for the Growth of the Indian Piggery Sector

01

New Ventures and Enterprises: The planning of expanding existing pig farms and starting new ones is lucrative.

02

Market Potential: The domestic and international markets witness demand for pork and its by-products promising economic growth.

03

Potential Growth in Breeding: Advanced technologies promise improvement in pig breeding thus elevating their productivity.

04

Government Support and Initiatives: The government offers various initiatives and policies for the seamless growth of pig farming.

05

Sustainable Practices: Adoption and implementation of viable practices promises success in the pig farming industry for the long term.

Demand in the global market driven by the wheels of technology is bringing new prospects for the pig farming industry. If the Indian piggery industry through its commercial enterprises can address the ongoing challenges effectively through technological advancements and government policy support, it has immense hidden growth potential to empower livelihood and economy of scale.



06 Ecological Implications and Sustainability Concerns

It is a well-known fact that the Piggery sector plays a vital role in elevating the socio-economic status of the weaker section of society as well as contributing to the economy of various countries internationally if combined through sustainable practices.

Key Environmental Concerns

Several studies revealed that feeding is the major contributor to impacting the environment. Feeding encompasses crop cultivation, manufacturing and transportation. Therefore addressing these issues is most important.

Life Cycle Assessment (LCA): Using LCA, researchers predicted the possible outcome of climate change measured in terms of equivalent carbon dioxide and studies done on the entire production life cycle.

Release of nutrients and pathogens from piggery solid waste causes water pollution.

Mixing of piggery solid waste in the soil degrades its quality.

GHG emission like methane, carbon dioxide and nitrous oxide.

Risk of zoonotic disease transmission from pig to humans and animals.

Ammonia arising from pig farms impacts the ecosphere and humans.

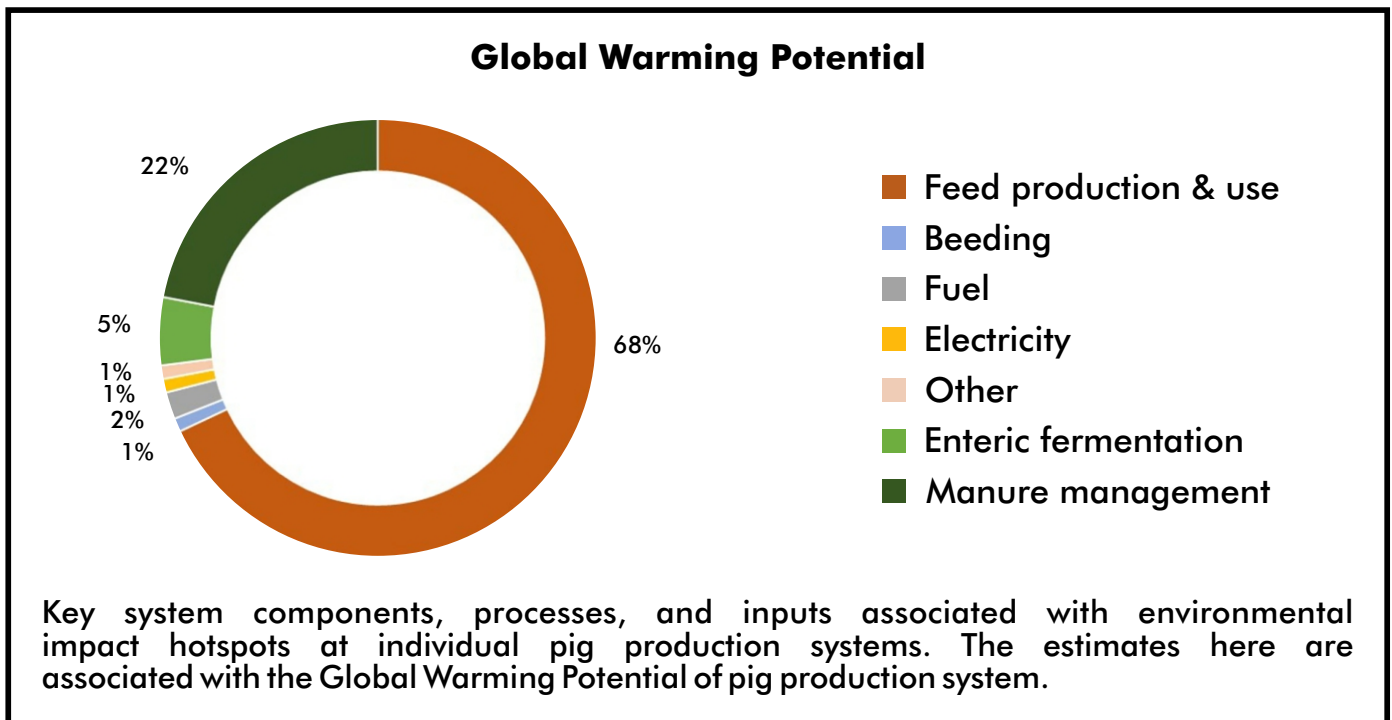
However, **due to the increased demand for pig meat consumption globally**, the related industries have expanded drastically raising alarm about the environmental impacts in the absence of environment-friendly industrial practices.

Potential Solution to Improve Environment Sustainability in Pig Farming

System component	Solutions theme	Potential solutions
Feed production & use	Soybean meal alternatives	<ul style="list-style-type: none"> GM / GE protein Insect farming Cellular agriculture Circular agriculture Home grown protein feeds
Animal growth & performance	Genetic selection	<ul style="list-style-type: none"> Feed use efficiency Nutrient utilisation
Manure management	<ul style="list-style-type: none"> Storage Treatment Application 	<ul style="list-style-type: none"> Anaerobic digestion Slurry separation Slurry acidification Climate control at slurry storage Climate control at pig housing

Summary of potential solutions towards improving pig system environmental sustainability considering management practices and technological innovations in the feed production & use, animal growth & performance, and manure management system components

Source: <https://porcinehealthmanagement.biomedcentral.com/articles/10.1186/s40813-023-00347-5/figures/4>



Source: <https://porcinehealthmanagement.biomedcentral.com/articles/10.1186/s40813-023-00347-5/figures/3>

According to the studies regarding the negative impacts on the surrounding biodiversity and living beings, we need to adopt tailored methodologies and viable sustainable practices to attain a healthy balance.

Sustainable Practices Benefitting Piggery Sector

The pig farming sector should adopt viable practices to efficiently manage piggery solid waste, GHG emissions and collect methane for cooking purposes.

Adequate steps should be taken to minimize transmission of zoonotic diseases by the owners of pig farms and authorities for the safety of humans and animals.

Optimize feeding ingredients to minimize environmental impact.

Efficient use of resources by adopting novel practices to have viable livestock.

The sector due to its expansion and rising demand essentially needs to adopt environmentally viable practices as global warming and climate change are the most serious concerns of the 21st century. An all-inclusive approach to preserve the balance between the pig industry and Earth's natural ecosystem is needed to ensure the sustainable economic growth of the industry soon.

How AG Group Can Be a Help

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07

Government Policy Landscape to Overcome Challenges

Witnessing diverse challenges for the seamless operation of the piggery sector and its subsequent growth, the government continue to launch various initiatives. Pig farming and breeding is a significant occupation in the rural sector offering livelihood sources and fulfilling meat consumption needs regularly. This showcases high demand for pig farming, however, the growth rate of the native breeds is comparatively low impacting productivity and profitability, where government intervention plays a crucial role.

Key Government Initiatives

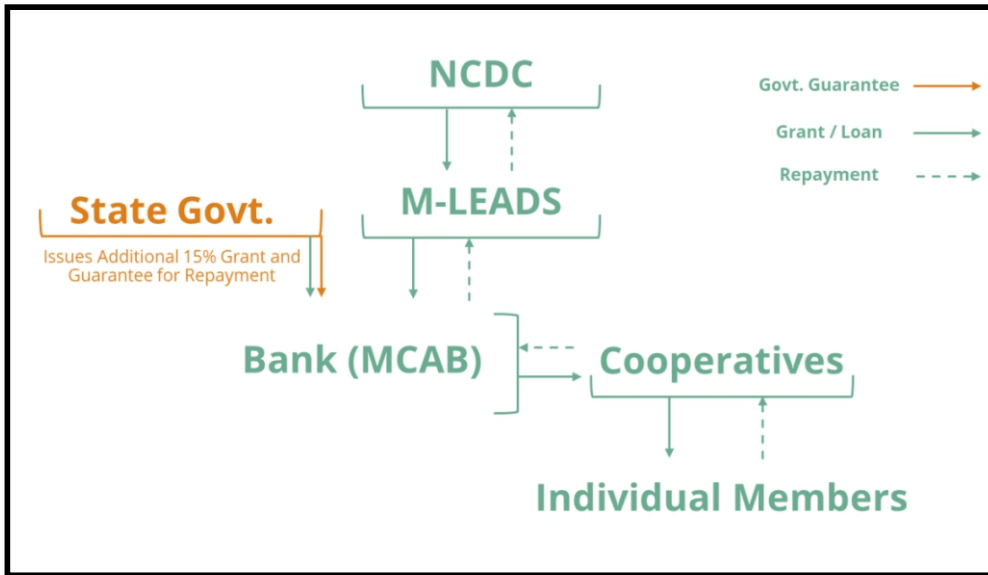
Piggery Mission: Its objective is to transform the production of pork to new heights driven through interest-free loans. The government sanctioned a budget of INR 209 crore to witness more than 20,000 piggery ventures in India.

National Livestock Mission (NLM): This initiative boosts various individuals/groups for setting up piggery farms and feeding facilities including farmer producer organizations (FPOs), self-help groups (SHGs), joint liability groups (JLGs), individuals and others by providing flat 50% subsidy.

National Fisheries Policy (2020): This policy is not directly related to the piggery sector instead it works in the integration mode with other farming industries. To counter the growing population's, need for feeding, availability is secured with fish protein including pork.

In the past 15 years, the market share of pork production is around 10% only. More than 70% of the pigs are of native breeds therefore the locals need to be educated about adopting sustainable practices, quality feed, and health management. In the recent decade, India has witnessed a negative growth rate therefore intervention is required through government initiatives to improve pig-rearing standards.

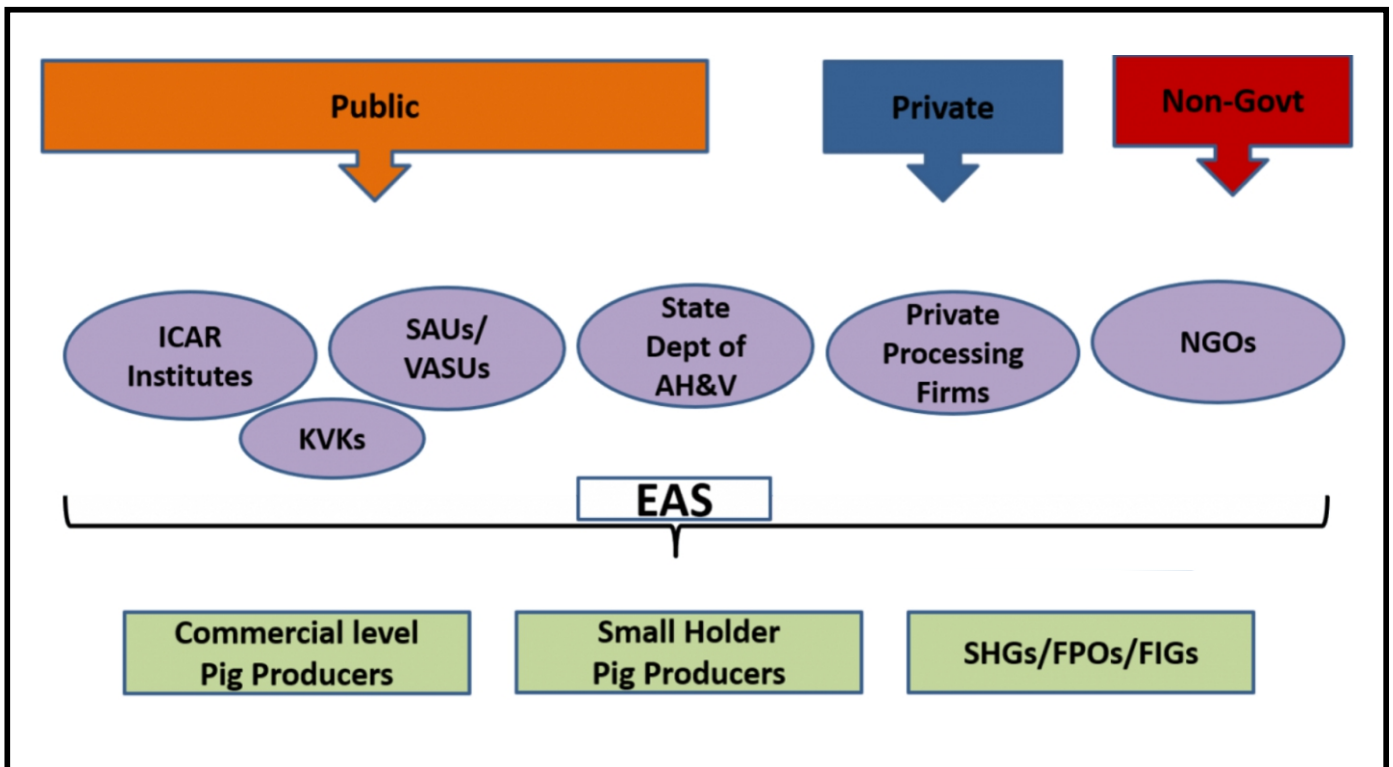
Fund Management under Piggery Mission



Source: https://megcooperation.gov.in/piggerymission/Piggery_Mission_1.pdf

Addressing biosecurity concerns regarding pig production is also a crucial step in ensuring the consumption safety of meat for humans. Additionally, focusing on disease control, and outbreak management with the help of Extension and Advisory Services (EAS) will bring a positive influence on the quality and production.

Stakeholders Providing EAS in the Piggery Sector



Source: <https://www.aesanetwork.org/blog-173-uplifting-the-piggery-sector-in-india-role-of-eas/>

The piggery sector has the potential to strengthen the economic prospects of rural communities by adopting the latest technology, sustainable practices, and financial support from the government to shine in the global market while leveraging the demand scenario.

08 Way Forward

With a low mortality rate in comparison to other animals involved in the livestock sector, pigs are tough animals. Thus, scaling their production in scarce conditions of feed and water with minimum infrastructure facilities can bring economic well-being for enterprises and pig farmers. The increasing demand for pork and its products is also developing new opportunities for business and employment in the domestic as well as global markets.

Thus, to avail the potential economic benefits of the largely profitable meat sector, the industry is attracting the attention of young and budding entrepreneurs. The government policy intervention in terms of breed management, disease control, and fund allocation is also strengthening the value supply chain while providing food security for its large population. With the help of the positive outlook of policymakers, field practitioners, as well as other stakeholders involved in the supply chain, the Indian piggery sector is promising a brighter future ahead.



“

In India, the demand-supply gap of pork is about 50%, which provides immense scope for entrepreneurship development in piggery sector. In recent years, pig farming and value addition has attracted entrepreneurship and private investment indicating resurgence of piggery-based agribusiness. There are opportunities for the small and marginal farmers to jointly form self-help groups or farmer producer organizations for establishment of processing unit and development of branded products. Key priorities in the agribusiness promotion in piggery sector are the clean and safe pork production, value addition and brand development.

”

Dr. Vivek Kumar Gupta
Director
ICAR-National Research Centre on Pig, Guwahati



Resources

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AG Horizon Pvt Ltd, established in the year 1998, is a multi-functional, multi-disciplinary organization offering a wide range of consultancy services to multiple sectors for the implementation of projects under one roof from "Concept to Commissioning". We have the privilege of working with Central & State govt. and with Multi-lateral funding agencies viz. World Bank, JICA, New Development Bank, Asian Development Bank etc.

With the vision of sustainable future, we have partnered with Moody's Analytics, a global integrated risk management firm established in 1909. Moody's Analytics provides financial intelligence and analytical tools to help central & state governments worldwide and business leaders to make better and faster decisions.



Chennai



Delhi



Dimapur



Gurugram



Guwahati



Hyderabad



Imphal



Kohima

OUR SERVICES



Policy Support



Business Acceleration & Growth



Transaction Advisory



Programme Management Unit

OUR SECTORS

Transport

Railway
Aviation
Ropeway
Electric Vehicle
Traffic Management

Engineering

Textile
IT & Telecom
Power & Renewable Energy
Infrastructure: Highway/Tunnels

Environmental

Water
Irrigation
Agriculture
Animal Husbandry
Horticulture & Forestry

Social & Public Sector

Sports
Tourism
Education
Healthcare

Sustainability

ESG
SDG
Carbon Credit
Climate Change



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