

Securing pig health

and empowering pig farmers

**Arun Prince Milton^{1*}, G Bhuvana Priya², Samir Das¹, Sandeep Ghatak¹,
Arnab Sen¹, R Laha¹ and S Deori¹**

¹ICAR Research Complex for Northeastern Hill Region, Umiam, Meghalaya 793 103

²College of Agriculture (CAU, Imphal), Kyrdemkulai, Meghalaya 793 104

The objective of the present discourse is to raise awareness among pig farmers about various infectious diseases and disease conditions that can affect pigs. It aims to provide important information about the signs and symptoms of these diseases as well as strategies for prevention, control, and management. Key topics covered include characteristic signs, vaccination, deworming, and disinfection. By providing comprehensive information on economically important diseases, the discourse aims to empower pig farmers with the knowledge and tools necessary to protect the health and well-being of their pigs and ultimately enhance the productivity and profitability of their pig farming operations.

Keywords: Control, Diseases, Pig farming, Prevention, Vaccination

PIG rearing plays a significant role in the farming community in certain regions of India. The total number of pigs in India is 9.055 million, according to the results of the country's 20th Livestock Census. Pig rearing provides a source of livelihood and income generation for many farmers in India, especially in regions where pig farming is practiced. Pigs easily transform agricultural byproducts, kitchen waste, and other organic wastes into high-quality pork. This helps farming communities reuse and recycle resources. Limited access to technical knowledge, inadequate infrastructure, and insufficient support services such as veterinary care and market linkages are some of the common constraints faced by farmers engaged in pig-rearing activities.

Pig diseases pose a significant threat to the Indian farming community engaged in pig rearing, leading to substantial economic losses. To mitigate economic losses, farmers need to implement biosecurity measures, maintain

hygiene, and seek veterinary assistance. The northeastern region of India is known for its pig farming activities, and pig rearing plays a vital role in the livelihoods of many communities. Efforts are being made by the government and veterinary authorities to implement disease surveillance, prevention, and control measures in the region. This includes awareness campaigns, training programmes, vaccination campaigns, and support for biosecurity measures to minimize the economic losses caused by pig diseases. Despite efforts to control and prevent pig diseases in Northeast India, economic losses due to these diseases continue to be a challenge.

Various diseases of economic importance in pigs

Classical swine fever (CSF)

Pestivirus of the *Flaviviridae* family causes extremely contagious Classical Swine Fever (CSF). It has many symptoms. Infected pigs may have fever, haemorrhages, lethargy, yellowish diarrhoea, vomiting,

and purple skin on the ears, lower abdomen, and legs. Abortion, reproductive failure, and neurologic symptoms can occur. Control and prevention are essential, as CSF has no therapy. Protecting pigs from the disease requires a highly effective vaccine. Vaccination boosts pigs' immune systems and reduces illness severity. Sanitary practices such as restricting farm access, quarantining new animals, and practicing appropriate hygiene and disinfection help to prevent CSF. To avoid disease transmission within the herd or to neighbouring farms, diseased animals must be quickly identified and isolated. Pig producers can limit CSF outbreaks and economic losses by vaccinating and practicing good hygiene.

African swine fever (ASF)

African Swine Fever (ASF) is a highly contagious viral disease that affects domestic and wild pigs. The causative agent of African swine fever is *Asfivirus*, belonging to the family *Asfarviridae*. After 3–7 days, infected swine develop a high



Pig affected with CSF showing subcutaneous haemorrhages

fever of up to 42°C. Inappetence, incoordination, weakness, and death occur rapidly. Pigs who survive the early stages of the disease may show cyanosis or reddening of the ears and snout, followed by body reddening and bleeding from the nose or rectum. African swine fever also causes vomiting, dyspnea, and sow abortions. African swine fever has no specific treatment or vaccination. Therefore, control and preventative efforts focus on rigorous disease containment. Swill feeding should be restricted or stopped as it can propagate the virus. Isolating diseased or suspected pigs, avoiding contact between wild and farmed pigs, and controlling animal movement can help to contain the disease. To prevent contamination, infected carcasses should be removed and disposed of properly.



Pig died due to ASF showing nasal bleeding

Porcine reproductive and respiratory syndrome (PRRS)

Porcine Reproductive and Respiratory Syndrome (PRRS) is a viral disease caused by *Betaarterivirus*, a member of the *Arteriviridae* family. The disease manifests in two phases: the reproductive phase and the

postweaning pneumonic phase. Symptoms of fertile sows are stillborn, mummified, preterm, and weak-born piglets. Anorexia and agalactia in lactating sows increase preweaning mortality. Suckling piglets' pounding breathing indicates respiratory trouble. The postweaning pneumonic phase is persistent and affects growing pigs. Pneumonia lowers daily weight gain and increases pig mortality. Other prominent symptoms are cyanotic (blue) ears, vulva, tails, abdomens, and snouts and haemorrhages on the skin of the lateral neck and limbs. New animals entering the farm should be quarantined and tested for the PRRS virus. To avoid spreading the disease, breeding stock and semen should be purchased from PRRS virus-free sources.



Pig died due to PRRS showing haemorrhages on the skin of the limbs

Porcine circovirus diseases

Porcine circoviruses have been associated with multiple disease conditions in pigs, including postweaning multisystemic wasting syndrome and reproductive

disorders. Porcine circovirus diseases, caused by the *Circovirus* from the *Circoviridae* family, can lead to various signs and symptoms in pigs. The most common signs include overt weight loss, growth retardation, wasting, low-grade fever, dyspnea (difficulty breathing), pallor, anaemia, jaundice, diarrhoea, palpable inguinal lymphadenopathy (enlarged lymph nodes in the groin area), late-term abortions, and stillbirths. Routine immunization prevents and reduces pig circovirus infections. Strong biosecurity precautions should be taken to prevent the spread of viruses. This includes restricting farm access, disinfecting, and isolating and quarantining pigs.



Aborted foetuses due to porcine circovirus infection

Foot and mouth disease

Foot and Mouth Disease (FMD) in pigs is caused by the *Aphthovirus*, which belongs to the *Picornaviridae* family. Pigs with FMD have acute lameness, fever, and vesicles and blisters on their heels, claws, teats, lips, nose, and tongue. Salivation, hoof loss, abortion, and piglet deaths are other indicators. Vaccination can play a crucial role in protecting breeding stock from FMD. Regular vaccination should be implemented, following the advice of veterinarians and in accordance with regional guidelines. To control and prevent FMD in pigs, implementing stringent biosecurity measures is essential, especially in mixed farming setups.



Adult pig suffering from lameness due to FMD infection

Piglet Diarrhoea/Scours

Escherichia coli, *Salmonella* spp., *Clostridium perfringens*, *Campylobacter* spp., rotavirus, *Cryptosporidium* spp., etc., are the causative agents of piglet diarrhoea or scours. The stress of weaning can often trigger enteric challenges in nursing pigs. Common manifestations include diarrhoea (ranging from loose to creamy consistency), vomiting, sunken eyes, huddling, and sudden death. Proper sanitation practices should be maintained in the pig pens and other contact areas. Access to a proper diet and nutrition should be provided to piglets. A clean source of water should be ensured for piglets to drink. Regular checks should be made on water quality and availability to prevent dehydration and reduce the risk of contamination.



Diarrhoeic faeces on the perineum of a piglet

Pneumonia

Causative agents, including *Mycoplasma hyopneumoniae*, *Actinobacillus pleuropneumoniae*, *Bordetella bronchiseptica* and *Pasteurella multocida*, *Streptococcus suis*, *Haemophilus parasuis*, etc., are responsible for pneumonia. Signs and symptoms can vary depending on the presence of different pathogens. Cough, breathing difficulties, open mouth breathing, discharges from the nose and mouth, cyanosis, decreased feed consumption, and reduced growth rate/feed conversion are some common signs and symptoms. Affected animals should be segregated and treated with proper veterinary consultation. Pneumonia and other respiratory problems in pigs can be prevented by avoiding

overcrowding, frequent mixing of pigs, maintaining optimal humidity levels, reducing dust, minimizing ammonia levels, and preventing temperature fluctuations.

Piglet anaemia

Piglet anaemia is caused by factors such as low body storage of iron in piglets, low iron content in sow's milk, and a lack of contact with iron from the soil. The condition is characterized by roughness of the hair coat, loss of pigmentation in the mucus membranes, conjunctival pallor, listlessness, drooping of the head and ears, lack of appetite, diarrhoea, reduced weight gain, and dyspnea in severe cases. The following measures can be implemented to control and prevent piglet anemia: A single iron dextran injection (200 mg I/M) can be administered to piglets 3-5 days after birth. Iron sulfate paste can be applied onto the sow's teat every 2-3 days. Iron licks/blocks and oral formulations can be provided to ensure an adequate intake of iron.



Conjunctival pallor in an anaemic piglet

Endoparasites and their management

Endoparasites are a common concern in pig farming, with several notable species that can affect the health and productivity of the animals. Among the most prevalent endoparasites in pigs are *Ascaris suum*, *Strongyloides* spp., *Strongyle* spp., *Trichuris suis*, *Eimeria* spp., *Balantidium coli*, and *Cryptosporidium* spp. It is recommended to deworm all breeding stock before breeding and administer deworming treatment to gilts and sows prior to farrowing. This proactive approach helps prevent roundworm infections in piglets as it reduces the transmission of parasites from the mother to offspring. Additionally, weanling and growing pigs should undergo one or more deworming

treatments to address potential parasite burdens and ensure optimal growth and development. When it comes to coccidian (*Eimeria* spp.) infections, special attention should be given, particularly during the monsoon period, which typically occurs from June to September. During this time, the warm and humid conditions facilitate the survival and proliferation of coccidian parasites. Table 1 presents management schedule for endoparasites.



Ascaris suum (adult) and *Strongyloides* sp. (egg)

Table 1. Management of endoparasites

Stage of production	Deworming schedule
Boars	Every 6 months
Sows	3-4 weeks weeks after breeding and 2 weeks before farrowing
Piglets	2-3 weeks after weaning
Fatteners	1 week after weaning and every 6-8 weeks
Gilts	1 week after weaning, 3 months and at 7 months of age at least 2 weeks before service
Common deworming agents, dose and its indications	
<i>For helminths</i>	
Piperazine @ 250-300 mg/kg b.wt in feed and water (single dose)	
Fenbendazole @ 5 mg/kg b.wt. in feed (single dose)	
<i>For coccidiosis</i>	
Amprolium @ 25-65 mg/kg of feed once or twice a day for 4-5 days	

Table 2. Vaccination planner of pigs

Vaccine	Commercial vaccines and companies	Primary vaccination	1 st Booster	2 nd Booster	Revaccination	Other advisories
Classical swine fever vaccine	Lapinized swine fever vaccine, Institute of Veterinary Biologicals, Lucknow (Uttar Pradesh); Institute of Animal Health and Veterinary Biological Products, Kolkata (West Bengal); Institute of Animal Health and Veterinary Biologicals, Mhow (Madhya Pradesh)	56 after weaning	After 1 month of 1 st vaccination	After 6 months of 1 st vaccination	At 6 months interval	Adult Female - 5 days after farrowing Adult male - repeat every 6 months
FMD vaccine	Futvac® (Brilliant Bio Pharma Ltd, Telangana), Raksha Ovac® (Indian Immunologicals Ltd, Telangana), Bio FMD® (Bio Vet Pvt Ltd, Karnataka)	21 days after weaning	After 1 month of 1 st vaccination	--	At 6 months interval	Repeat revaccination 15 days after each swine fever vaccination
Porcine circovirus vaccine	Ingelvac CircoFLEX vaccine (Boehringer Ingelheim India Pvt Ltd, Mumbai, Maharashtra)	At 3 weeks of age	--	--	--	Single dose vaccine

Note: Swine fever vaccine should not be administered in pregnant animals. Fifteen days' interval should be given between two vaccinations. Dose and route- as per manufacturer's instructions.

Ectoparasites and their management

Ectoparasites pose a significant threat to pig farming, with mange mites (*Sarcoptes scabiei* var. *suis*) and lice (*Haematopinus suis*) being the primary parasites. Sarcoptic mange, caused by *Sarcoptes scabiei* var. *suis*, is particularly detrimental to production efficiency, making effective management strategies crucial. Efficient management of ectoparasites is crucial in pig farming to maintain production efficiency. Prior to farrowing, it is advisable to scrub sows with insecticides to reduce the risk of transmission to piglets. The following products are commonly recommended for ectoparasite control in pigs: Ivermectin (300 mcg/kg body weight subcutaneously), Malathion (1% spray), and Amitraz (12.5% dip).

Vaccination planner

The comprehensive vaccination planner (Table 2) outline the specific details of each vaccine, including the vaccine name, recommended



Pig affected with sarcoptic mange and micrograph of *Sarcoptes scabiei* var. *suis*

age for administration, dosage, and any necessary booster shots. This invaluable resource ensures that pig farmers can effectively manage and track the vaccination schedule for their swine, promoting optimal health and disease prevention.

CONCLUSION

It is crucial for pig farmers to be well-informed about the characteristic signs of various diseases and receive training on scientific pig farming practices. By understanding the specific symptoms, disease control tools, and hygienic and biosecurity practices,

farmers can promptly identify and address potential health issues within their herds. Equipping themselves with knowledge and training ensures that they can implement effective preventive measures and employ appropriate practices when necessary. Ultimately, this proactive approach leads to healthier pigs, improved herd management, and enhanced productivity within the pig farming industry.

*Corresponding author's e-mail: vetmilton@gmail.com



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Protect environment.**

