

# Major Biosecurity Guidelines for Piggery Production

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## Introduction

Pig rearing is one of the most important occupations of rural society especially among the tribal masses of India. It has largely remained under free range rearing with the weaker sections of the society both as a source of income and a choice of meat for consumption. Pig is one of the most efficient feed converting animals among all domesticated livestock species and can play an important role in improving the socio-economic status of the weaker sections of the society. Bulk of the pig population in India is indigenous type with low growth rate and productivity. The share of pork to the total meat production has been almost static for last 15 years at about 10%. Average meat yield of pigs in India is about 35kg/animal, which is about 55% less than the corresponding value of world average (78kg/animal). Over 70% of the pigs kept in India are indigenous. Pig rearing is still in the unorganized sector that requires science and technology driven support to make it a vibrant enterprise. The pig population scenario over the decades in India indicates a decline in growth rate, which is a cause of concern. As per the latest livestock census, the pig population in India is 10.29 million. Majority of our pig population is owned by marginal and small farmers and landless labourers, who cannot effort much for scientific piggery which needs good housing, quality feed and better health management.

Theses farmers are also not much aware about the diseases, which may have significant impact not only on the pig heath but also on human health. To sustain pig production in India and also to produce safe pork for human consumption the guidelines on biosecurity plan is prepared. Good herd biosecurity is essential to maintain herd health status and also for undertaking control or eradication programme of diseases. Biosecurity is a cornerstone of herd health maintenance. Management of disease outbreaks and control of endemic diseases are challenges in many pig production systems, but particularly in small holder pig systems in developing countries like India, where high mortality and morbidity rates are a major problem.

## Definition of Biosecurity

Biosecurity is defined as: The implementation of measures that reduce the risk of the introduction and spread of disease agents; it requires the adoption of a set of attitudes

and behaviours by people to reduce risk in all activities involving domestic, captive/exotic and wild animals and their products. The OIE's Terrestrial Animal Health Code (OIE, 2008b) Code defines a biosecurity plan as: a plan that identifies potential pathways for the introduction and spread of disease in a zone or compartment, and describes the measures which are being or will be applied to mitigate the disease risks, if applicable, in accordance with the recommendations in the Terrestrial Code.

### Basic Biosecurity Measures at the Farm Level

The measures that can be used to improve biosecurity can be categorized in several ways. One way is to classify measures according to three goals: isolation, sanitation and traffic control. Another way is to classify measures into three steps:

#### 1. Segregation

It is the most crucial and initial component of biosecurity. It entails separating potentially infectious materials and animals from healthy ones. In order to achieve the necessary levels of biosecurity, segregation is thought to be the most efficient stage because no infection can occur if a pathogen does not enter a holding. Except in cases of extreme necessity, no materials or animals including humans should enter or exit a pig holding. This goes not only for pigs but also for other species that can be contaminated with viruses and potentially infect pigs.

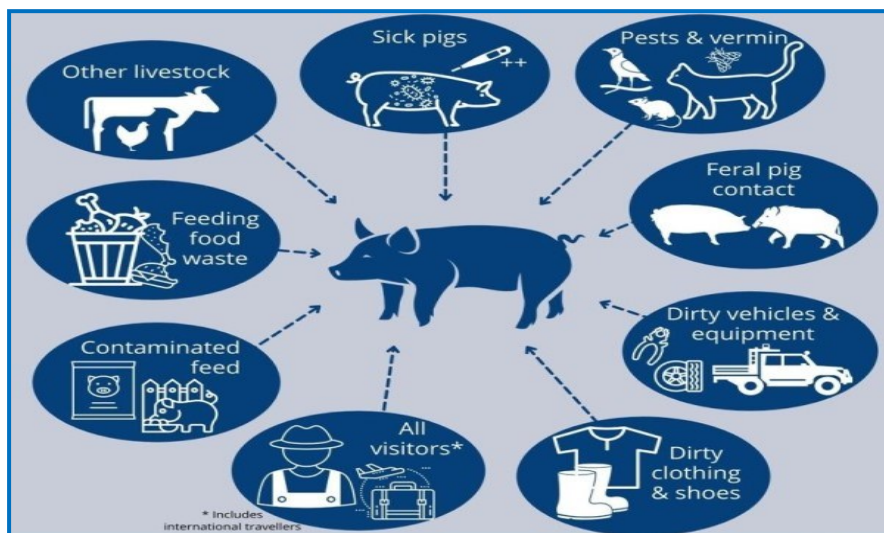
#### 2. Cleaning

Cleaning is the most efficient next step in biosecurity. The majority of pathogen contamination found on physical things comes from secretions, urine, or faeces that stick to the surface. As a result, washing will mostly eradicate the contaminating pathogen. It is important to thoroughly clean all materials that must cross the segregation barrier (in either direction).

#### 3. Disinfection

Disinfection constitutes the last phase in biosecurity. The Terrestrial Code describes disinfection as: "The application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated" (OIE, 2008b). When carried out correctly and consistently, disinfection is crucial, however it should be utilised as the last "polishing" stage in biosecurity following thorough and efficient cleaning. Programs that stress the use of disinfectants will inevitably face difficulties because they are often unavailable in rural areas. Disinfectants are regularly implemented incorrectly, even when easily accessible. Disinfection is not always as effective in the field as it is in perfect, controlled environments. It is not always the case that disinfectants will permeate dirt at high enough

concentrations or remain there long enough to be effective. Furthermore, a lot of disinfectants are rendered inactive by organic things like wood or excrement. Therefore, it may be said that, despite its importance, disinfection is the least successful biosecurity measure.



**Figure 1:** Different type of disease pathway.

### Major Routes of Disease Transmission and Implications for Biosecurity

- Direct pig-to-pig contact
- Semen
- Airborne transmission
- Visitors and outdoor persons
- Vehicles and other fomites
- Pig feed, including swill feeding, and drinking-water
- Pig manure and bedding
- Birds, bats, rodents, feral and wild pigs and stray/domestic animals and arthropods

### Ten Step Guide in Implementing an Effective Biosecurity Plan in Pig Farm

1.	Replacement stock should be quarantined and it should be ensured that their health status is compatible with the existing herd.
2.	Entry to the farm should be restricted only to essential personnel and their entry should be recorded.
3.	Boots and coveralls should be provided for staffs and visitors for each pig shed.
4.	Staffs should use dedicated boots and coveralls upon entering each different shed. Clean footbaths may be appropriate at the entry point.
5.	Vaccination programme should be followed regularly.
6.	Entry of equipment and other materials to the farm should be minimized and appropriate precautionary measures such as disinfection, removal from shipping boxes etc. should be strictly followed.
7.	Entry of wild animals (rats, birds, insects) or pets (dogs, cats) to the farm should be prevented.
8.	Semen should be used from a known source, which routinely tests against major infectious agents that can be transmitted through semen.
9.	Should be ensured that feed and water sources are free from infectious agents.
10.	Biosecurity plan and herd health program, including vaccination protocols should be reviewed on a regular basis.

## Conclusion

The set of practical steps done to stop infections from entering pig farms and to stop them from spreading within them is known as farm-level biosecurity. A biosecurity program's objectives are to reduce the burden of endemic infections and keep out pathogens to which the herd has not been exposed. The preparation and execution of a program to reduce different risks that could negatively impact the farmstead and the pigs is known as pig farm security. Pig health and productivity are improved by the integration of security protocols and biosecurity measures. The creation and upkeep of a financially viable biosecurity program involves many variables.

These components can be compared to links in a chain; the strength of a biosecurity program is measured by the weakest link. This publication's goal is to enlighten readers about the different factors to take into account when putting in place and overseeing a biosecurity and farm security program. Not every farm should, nor is it practical, use every one of the above processes. Since every farm has different security and biosecurity risks, every biosecurity plan should be tailored to that particular farm. Collaborating with a swine veterinarian or veterinary consultant who possesses comprehensive understanding of the farm, staff, and nearby risk factors yields the most effective plans.