



How policy can support behaviour change for healthier poultry production

This brief identifies barriers to good biosecurity on poultry farms. It recommends ways forward to minimise disease outbreaks, increase economic efficiency and create safer food for consumers.



A scavenging chicken farm in Bac Giang. Photo: Pham Thi Thanh Hoa.

Background

Vietnam's poultry population has increased significantly in recent years, from 436m in 2018 to 545m in 2022.¹ Rapid increase in poultry numbers, especially in broiler flocks, increases the risk of disease outbreaks – and outbreaks of respiratory and gastrointestinal diseases and avian flu ('bird flu') occur sporadically in poultry households in Vietnam, sometimes with unpredictable results. Good biosecurity practices can minimise and control disease emergence and spread on farms, increase the economic efficiency of poultry farming and provide safer chicken products for consumers. The control of diseases with the potential to spill over from poultry to people, such as avian influenza, is particularly important in epidemic prevention.

However, biosecurity measures have not been thoroughly or regularly applied at poultry farms, despite many training programmes and guidance documents issued by the Food and Agriculture Organization (FAO) and government organisations (e.g., the Agricultural Extension Centre²). Understanding the barriers that prevent farmers from thoroughly applying biosafety measures will help identify ways to overcome them. It will lead to safer and more sustainable poultry farming in Vietnam.

Recommendations

- Support **research** on the health risks and cost benefits of strictly controlled entry to poultry farms. Communicate the findings to poultry farmers.
- Support the establishment of a **national centre for forecasting** fluctuations in poultry numbers, consumer poultry demand and market prices of poultry products. Promote it so farmers can access information and better plan their flocks.
- Support processing companies to improve slaughtering and **processing protocols**, and diversify poultry products.
- Support **'farm to fork' integration** between poultry farmers and processing companies to help maintain stable poultry production and distribution and poultry prices.
- Raise **consumer awareness**, especially among younger people, of safe poultry products. Encourage consumers to eat only products that have safety and hygiene certification and traceability.

The research



We conducted three two-day training courses for local veterinary staff and poultry farmers in three northern provinces of Vietnam. The courses aimed to improve knowledge about biosecurity, disease control and the appropriate use of antibiotics in poultry production. In addition to transferring knowledge, training participants had a chance to discuss, exchange and present their opinions on issues related to biosecurity and the safe use of antibiotics in poultry farming.

A year after biosecurity training, we returned to the trained poultry households and assessed the application of biosecurity measures as well as changes in the perception, knowledge and production practices of farmers.

Barriers to change

Most poultry farmers on training courses want information and advice on how to control disease in their birds. They recognise that understanding the pathogens that cause disease, and the transmission routes of the pathogens, will increase the effectiveness of disease prevention and treatment and reduce the cost of drugs they use for poultry production.

In our discussions, poultry farmers said they took part in training courses organised by veterinary drug and animal feed companies. However, this training content focused primarily on introducing the company's products. The explosion of many veterinary medicine and animal feed companies in Vietnam and the diversity of veterinary medicine products make it difficult for farmers to distinguish and evaluate the effectiveness of drugs. As a result, farmers have to pay high costs for veterinary medicines, while the effectiveness of disease prevention and control is limited.

All the poultry farmers we interviewed said they believe it is not possible to apply biosecurity measures thoroughly. The reasons given were lack of land to build farming areas separate from residential areas, lack of resources (including human resources and capital) and pressure from traders and marketing. Importantly, the interviews also showed farmers lacked full awareness about biosecurity issues.

All poultry households use family labour, including farms with flock sizes up to 20,000 birds. Usually, this labour comprises a couple or a father, mother and son. In some cases, additional labour is needed to catch and sell birds and clean the chicken housing between batches, so farmers will hire outside workers for one or several days. According to poultry farmers, the cost of hiring labour is high. Facing commercial pressures, to save costs farmers often take advantage of outside help, despite knowing about the risk of bringing pathogens on to their farm. Traders (and their vehicles) come to their chicken housing to help catch birds, veterinary staff from drug shops or veterinary medicine companies come on to their farms for chicken vaccination, and

loading workers from animal feed companies bring poultry feed to their feed stores. These people often do not wear coveralls and boots when entering the barn, and trucks transporting animal feed and chickens are not disinfected before entering the farm.

Some farmers said they believe that by cleaning chicken housing and spraying disinfectant after chickens are sold, or disinfecting parking areas after vehicles have left, the risk of disease will be minimised. Others said that if there are no disease outbreaks in the area, there is no need to worry. However, if they hear of an epidemic, they will spray disinfectant on vehicles before entering their farms and control people's entry more rigorously.



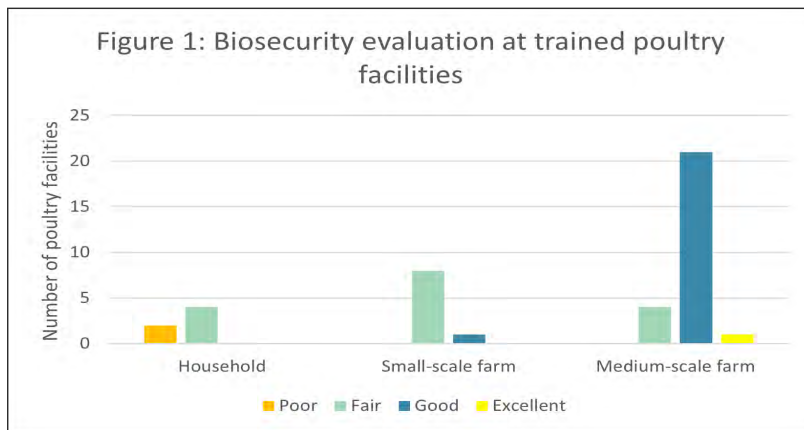
If we don't allow traders into our chicken housing, they won't buy our chickens. Delaying the sale of chickens by one day will increase feed and other costs. Although we know the risk of pathogens entering the farm, we can't do anything else.

- Small-scale poultry farmer

Some medium- and large-scale poultry farmers have their own (mistaken) beliefs on disease prevention and control based on past experiences and they fail to apply biosecurity measures to themselves. They go out to eat and drink or visit friends and relatives, then go straight to their farm to feed their chickens without washing their hands, showering or changing clothes. They say a well-implemented vaccination process will limit disease outbreaks and it is not necessary to always strictly comply with biosecurity measures.

Some middle-aged poultry farmers do not appreciate the importance of washing hands, changing boots and changing protective clothes when entering poultry barns and feeding chickens. They said such practices are troublesome and they have too much work to do and no time for such details. Despite knowing the benefits of such biosecurity practices, old farming habits are deeply ingrained and they are afraid to change.

Post-training evaluation on biosecurity



For evaluation, we visited 41 out of the 46 trained poultry farmers. Most of their households had stable poultry production, though some had increased flock size compared to the previous year. Of the surveyed poultry facilities, six households (15%) had fewer than 2,000 birds, nine (22%) were small-scale farms with 2,000-6,000 birds and 26 (63%) medium-sized farms with 6,000-30,000 birds. Poultry farming was the main source of income for most households. The majority of farmers (63%) had 10-20 years' experience raising chickens, with a few (7%) having over 20 years' experience.

Eighty percent of the poultry farms visited raised several flocks of different ages. They both sold chickens and imported chickens to raise most months. According to farmers, raising multi-herds like this is also a way to minimise economic losses when market prices drop. With fluctuations in chicken prices, farmers dare not raise many chickens in one batch. Instead of raising 6,000 birds at a time, they often split them into three batches of three different ages and sell them at three different times. Thus, if chicken prices fluctuate they can compensate for profits between batches.

We assessed the application of biosecurity measures at poultry farms according to the five-part biosecurity UGA Extension³ assessment checklist with some additional evaluation questions designed for poultry farming conditions in Vietnam. The checklist consists of five parts with a total score of 100 points. Factors looked at included: whether the farm had several flocks at the same time, the empty-barn period, the source of food, water, breeds, manure treatment and bedding.

Most of the facilities (95%) raised coloured broiler chickens. The majority of medium-sized farms (21/26 farms) were rated at a good level of biosecurity (60-69 points), with one farm rated at excellent (70-79 points). The majority of small-scale farms and households were rated at a fair level of biosecurity (50-59 points), and two out of six households were classified as poor (below 49 points). See Figure 1, above.

Some point of interest included:

- Farms with up to 20,000 birds were located in residential areas, close to inter-village roads, and

allowed traders, porters and vaccination veterinarians to enter without protective clothing.

- None of the farming facilities had separate parking areas. Vehicles that transport chickens and feed were parked less than 50m from the chicken housing and not sprayed with disinfectant before entering the farm.
- Rats often appeared in chicken housing. Some farmers said they use biological drugs to kill rats after selling chicken batches, but as they raise several batches and as chicken farms are close together in residential areas the effectiveness is not high.
- Farms had 2-3m nets only around their barn and chicken areas but not over the top of them and wild birds (e.g., hawks, sparrows) could access these areas.
- Small-scale and household farms raised several poultry species (e.g., chicken, ducks, muscovy ducks, geese).
- The cleaning of chicken housing and entrances in small-scale and household farms was not good.
- Sick and dead chickens were not handled safely on small-scale and household farms, with dead chickens often thrown into village landfills or given away as dog food.
- In small-scale and household farms, the chicken-raising area was next to the house and villagers could easily access the chicken-keeping area.

Changed behaviour after training

After training, all the interviewed farmers said they had improved their knowledge and learned the correct practices for cleaning and disinfecting barns and preventing poultry diseases. Sixty-six percent said they feed and take care of young chickens before going to older flocks, assign a person to take care of sick chickens or take care of healthy chickens before going to sick chickens; and use separate boots and clothing for sick-chicken housing.

Thirty-two percent said they had used quick/unslaked lime instead of less effective powdered lime to disinfect the chicken housing floor after selling a batch. Most farmers use a high-pressure pump to wash the floor, ceiling and netting around chicken housing, use the appropriate dosage of medicine, and adjust nozzles to get the best results of disinfection.

Some farmers said they had done calculations to ensure a reasonable density of chickens in the housing. Others said they will sell off chickens when they are 75 days old to maintain an appropriate chicken density. Some farmers said they are now more conscious about using veterinary drugs on chickens. They only buy and use veterinary drugs when really necessary and have saved costs as a result. Others are now conscious of the withdrawal period of antibiotics before selling chickens (i.e., the requirement to stop using antibiotics at least 14 days before selling chickens) and do not dispose of medicine packages around the chicken raising area.

A small number of farmers said they are now aware of the need to control people entering the farm. For example, they no longer use vaccination services provided by drug shops or allow people who buy chicken manure to clean up and collect the manure in the chicken housing. They vaccinate birds themselves and bring manure to the farm gate for buyers to take away. However, the practice of traders going into chicken housing to choose and catch chickens persists.

Policy for safer poultry production

By training poultry farmers and analysing the feedback, we were able to gain valuable insights into the biosecurity challenges on poultry farms in Vietnam today. These insights have valuable implications for more effective policies and improved practices in poultry production.

Our research shows that barriers come from both farmers' knowledge and perceptions *and* the pressures farmers experience from the market and trading practices. After biosecurity training, poultry farmers had a practical knowledge and new understanding of how to apply biosecurity measures in poultry production. They followed disease prevention procedures, cleaned and disinfected housing and kept their chicken housing empty for at least 15 days before starting a new batch.

However, the control of people and vehicles entering farms still needed to be applied more strictly. To improve this, poultry marketing and prices need to be stable. When poultry marketing conditions remain stable, farmers need not worry about outlets for their chickens. They can refuse traders who do not comply with biosecurity measures. Stable poultry prices also help farmers have a stable income and sufficient money to improve biosecurity.

At the same time, better biosecurity training and promotion was shown to be needed for people other than farmers—people in poultry distribution (traders, brokers/middlemen etc.) and service provision (staff at veterinary drug companies and animal feed companies). This can ensure that these frequent farm visitors comply with biosecurity measures when entering poultry farms without being requested to do so.



Further information

The GCRF One Health Poultry Hub is an impact-driven research and development programme working to help meet Asia's growing demand for chicken meat and eggs while minimising risk to local and global public health.

The training courses on biosecurity belongs to the third programme of the Hub and aimed to improve the capacity of both the Hub researchers the poultry farmers in the study sites. The training courses were carried out in October and November 2022 in Bac Giang, Hai Duong and Quang Ninh provinces with a total of 78 participants (22 local veterinarians and 46 poultry farmers).

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The findings, interpretations and conclusions are those of the authors only.

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Footnotes

1. www.gso.gov.vn/px-web-2/?pxid=V0641&theme=N%C3%B4ng%20%C3%A2m%20nghe%E1%BB%87p%20v%C3%A0%20th%E1%BB%A7y%20s%E1%BA%A3n
2. www.fao.org/3/cb1748vi/CB1748VI.pdf
3. poultry.caes.uga.edu/extension.html