

## 5. Prevention and biosecurity

Areas that have not been affected by an HPAI outbreak or that have undergone culling, disinfection and even vaccination should improve their biosecurity. Improved biosecurity, at whatever level, is cost-effective in comparison with the losses from disease, depopulation and further anguish, be it at the village level or on a commercial farm.

The most difficult environment in which to improve biosecurity and disease prevention is likely to be at village level, where poultry and other animals are often allowed to move about freely and there are no costs to animal care (feeding), but where losses due to disease or scavenging animals (e.g. dogs, cats, wildlife) are high. Under these circumstances, rural development agencies can be beneficial in promoting the advantages of keeping animals in a fenced enclosure, where environmental stresses are minimized, theft is less likely, animals are safer from scavenging animals, and the loss of valued animals through being run over by motorcycles, cars or lorries is eliminated.

### 5.1 RESTRICTED ACCESS KEEPS DISEASE OUT

Restricting access to a property or farm through the use of fences and enclosures creates a barrier between clean areas where poultry are kept and the outside environment. Access to places where poultry are kept should be restricted to people known by the owner, people who do not have poultry of their own and people who do not participate in events where birds congregate, such as cockfights. Particular attention needs to be paid to workers on poultry farms who keep backyard poultry at home. Best practices stipulate that no workers should have poultry of their own because this is a high-risk avenue for disease introduction. Wild birds (resident fowl or migratory birds) should have no contact with the flock. This is achieved through the use of screens or overlying nets. Visitors wishing to see poultry should wash their hands, change their shoes and use footwear provided by the owner (e.g. rubber boots that are kept for such visitors). Visitors who have birds of their own should not be allowed near the birds.

Ducks kept in ponds or paddy fields shared with other ducks belonging to a different owner represent a high risk, unless all the duck owners agree on measures that can be taken collectively. For instance, poles with netting can be erected to separate one owner's flock from another's, and owners can take turns scaring away wild birds from landing or feeding within production flocks.

### 5.2 CLEAN AREAS MEAN HEALTHY CHICKENS, GEESE AND DUCKS

The area where the flock lives should be kept clean of garbage (e.g. food waste, plastic bottles, glass bottles, tins or drums). When the owner or care person needs to attend to chickens or other poultry (e.g. collecting eggs, feeding or watering chores, changing the bedding, repairing fencing material), a change of clothing and boots should be required. These clothes and boots can be cleaned and disinfected upon exiting the enclosure, and

thus be ready for the next use. Dirty clothes should be washed with detergent and hung out to dry in the sun; boots should be washed with chlorinated water or soapy water. Washing one's hands with soap before entering the caged-in area is also necessary. Tools (e.g. feeding scoops, shovels, brooms) and feeding pans used in the caged areas should be cleaned daily. All manure should be removed and disposed of properly (e.g. in a compost pile). Keeping a wide pail with chlorinated or soapy water at the entrance for use before entering or exiting the enclosure is a good reminder to follow biosecurity measures.

Keeping the cages clean prevents pathogens from accumulating and causing health problems. Clean cages keep the birds and eggs clean as well, and this cleanliness translates into better market prices. Sick or dead chickens must be removed quickly, and community animal health workers or the local veterinarian must be informed of such illness or death.

### 5.3 BUY HEALTHY, KEEP HEALTHY

Transporting birds to the farm can represent a considerable risk. The owner should be aware not only of the "good" price obtained, but also of the fact that vehicles (e.g. trucks, motorcycles, bicycles), cages, equipment and feed may be contaminated when returning to or entering the farmer's property. Newly purchased equipment should be thoroughly washed with soapy water or otherwise disinfected before use. Newly purchased birds should be housed in a separate enclosure for at least two weeks before being allowed to mix with birds already on the farm. Owners are advised that it is important to keep species separate and not mix ducks with chickens, chickens with pigs, or ducks with pigs. It is also good practice not to mix animals of different ages.

### 5.4 CLEAN EQUIPMENT KEEPS DISEASE OUT

Poultry equipment, such as cages, egg crates, shovels or rakes, should not be shared with other farms or holdings. Wooden pallets, wooden handles, or egg crates can be porous, and even though they can be treated with disinfectant, it is difficult to ensure that they are completely disinfected. Metal cages can be cleaned and disinfected; if these are borrowed because of necessity, they must be cleaned and disinfected by the owner of the birds before they are reused.

### 5.5 REPORT EARLY SIGNS OF A PROBLEM THAT COULD BE DEVASTATING

Many bird diseases look similar. Early detection and prompt reporting will probably help stop the spread of disease. Owners must know where to report abnormalities on the farm, and they must do this when abnormalities begin, not when they end. Signs to be reported include: sudden death; depression and decreased appetite; diarrhoea; breathing difficulties such as coughing, sneezing and gasping; nervous twitching; dropped wings; paralysis; and swelling of the head with darkened combs, wattles or legs.

Owners must be assured that the early reporting of a problem will benefit them, their families and their village in the long run. In this regard, the government – in conjunction with the poultry industry – should be prepared to react and provide proper compensation (see section 4.2.2.3 above). **Failure to provide an incentive for compensation for disease reporting will undoubtedly lead to disease spread.**

## 5.6 A PERIOD OF REST

One prevention measure that can be instituted but requires planning and several enclosures is the practice of “all-in/all-out”. This method is used in many countries and envisages a complete growth cycle of chickens (or other species) from the moment of introduction – as with day-old chicks – all the way to marketing age. At no time are other birds introduced into the enclosure. Once the entire flock is sent to market, the floor is scraped clean of faecal and feather debris, bedding and feed are removed and cages and other equipment are cleaned and prepared for the introduction of young healthy birds. It would be wise to keep the enclosures free of birds and other animals for a rest period of about seven days before bringing in the next batch of poultry.

With duck operations, the all-in/all-out operation may be more difficult, unless there is planning in the growth cycle between birds using the same pond and double netting is used between age groups. Double netting (2–3 metres apart) implies additional cost, but it decreases the opportunity for pathogens to contact susceptible ducklings. Although ducks share the same water ponds in which avian influenza viruses may survive, this measure still decreases the likelihood of disease transmission.

## 5.7 VACCINATION AGAINST AVIAN INFLUENZA OR OTHER DISEASES

Vaccination, in general, increases the resistance of poultry to disease but does not eliminate the possibility that infection may occur in a flock. Prevention of disease and infection can be accomplished only if other aspects of prevention and improved biosecurity are in place.

When poultry are to be vaccinated, it would be wise for the owner to ensure that the vaccination team changes clothes and cleans and disinfects all boots, gloves and equipment before entering poultry enclosures. Should the vaccination team resist such instructions, the owner should report the non-observance of biosecurity measures to the appropriate veterinary authorities.

## 5.8 COMPARTMENTALIZATION

In the OIE’s *Terrestrial Animal Health Code*, the term *compartmentalization* refers to one or more establishments under a common biosecurity management system containing an animal subpopulation with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control and biosecurity measures have been applied for the purpose of international trade (more information is available in the chapter on “zoning and compartmentalisation”: Chapter 4.3 in the 2008 edition).

In countries where the disease may be present in some areas or confined to some production systems, this concept can be applied to poultry operations that adopt strict biosecurity measures to prevent the introduction of the disease all along the production process.

In poultry operations that are tightly controlled by producers, a strict method of operation must be ensured to prevent disease from entering the operation. Besides taking the measures mentioned in the above sections of this manual, operators need to constantly monitor areas of risk and practise all-in/all-out measures. For example, the origin of fertilized eggs, certified biosecured and reliable hatcheries and their incubators, certified feed

sources and transport companies must be registered, dated and documented. The poultry operation must register a complete account of its activities and sources, which include:

- a census of production (stages and location);
- protocols for training of operators;
- instructions to operators within the farm (clothing, cleaning, vaccination, feeding, reporting, etc.);
- protocols for cleaning and disinfection;
- purchases and location of suppliers;
- vermin and insect control measures;
- egg crate circulation, management and acquisition;
- employee profiles and responsibilities;
- transport control on and off the premises;
- employee and employee-family awareness; and
- registries open to frequent regulatory inspection.

One area of concern for regulatory authorities is the reality that many highly developed production poultry operations have their own diagnostic laboratories, which may carry out diagnostic assays without reporting to the authorities. It is indispensable that such commercially associated laboratories and their managers be made aware of the importance of reporting disease occurrence and its consequences to international trade for the country and their enterprise. Commercial operators should be linked with prevention, contingency and emergency plans for national and regional success and health.