Training Content Flyer for Training Participants

Reducing Moral Hazards & Enhancing Resilience in Bangladesh's Chicken Production, Hatchery Management

Introduction:

In Bangladesh, poultry is an important agriculture sector with its contribution to employment and food security. However, the quality of poultry meat is a growing concern with the presence of heavy metals like chromium, cadmium, arsenic, mercury, etc., in poultry feeds and the use of antibiotics as a growth promoter. Producers use steroids, antibiotics, growth regulators, vegetable oils, and the like to fatten their birds, which can lead to many life-threatening health hazards among consumers.

Without a proper policy or market mechanism, producers often choose to maximize their return by using activities that are unfavorable to the consumer. This behavior, which benefits an individual, but hurts wider society, is called a moral hazard behavior (MHB). Such practices also lead to weakening the resilience of the poultry producers, as they work to respond to growing demand and climate change. (Resilience is the ability to adapt successfully in the face of stress and adversity.)

Sufficient knowledge about safer production practices, as well as farmers' attitudes toward safer poultry production, can increase safety. This document is the English version of a training pamphlet used in late 2023 that disseminated research results and shared the best farm management for poultry producers in Bangladesh.

To assess the current knowledge, attitude, and practices (KAP) regarding safer poultry production, primary data were collected from 412 poultry farmers from six main poultry-producing areas: Dhaka, Gazipur, Rajshahi, Khulna, Cumilla, and Chattogram. The collected information included

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producer socioeconomic characteristics, current KAP status on safer poultry production, the level of moral hazard, factors that affect practices, and so on.

Current status of KAP on safe poultry production and resilience capacity

- Approximately 14% of respondents possess poor knowledge of safe poultry production, while 47.57% of respondents have good knowledge.
- Most poultry producers have a positive attitude towards good and safe farm management, farm biosecurity, and health consciousness. Still, in practice, they can't afford to prioritize those due to low margins in their industry.
- A substantial share of producers report using antibiotics at all times. Additionally, farmers who fell into the poor category reported not using proper clothing, not checking the expiration date of medicine, not burying dead chickens, not separating sick chickens, and not maintaining proper biosecurity.
- Young producers have better knowledge of safer poultry production and generally practice it more than older producers. Education, access to extension services, knowledge, and attitude toward safe poultry production are shown to significantly influence safe poultry production practices.
- A lack of cooperation exists among farmers, and between farmers and other value chain actors. Power dynamics are asymmetrical. Better resilience was found where producers compete openly, where the rule of law is well-implemented, and where farmers employ evidence-based decision-making. Overall, poultry producers have a very low resilience capacity.

Enumerator interviewing a poultry farmer regarding production procedures, moral hazard, and resilience capacity (Photo credit: Md. Emran Hossain)

Establishing Farms or Hatcheries

- A suitably isolated geographical location is recommended. Factors to consider include the location of other poultry and livestock

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establishments, wild bird concentrations, and the distance from roads used to transport poultry.

- Poultry establishments should be located and constructed to provide adequate drainage. Run-off or untreated site wastewater should not be discharged into waterfowl habitats.
- Poultry houses and hatcheries should be designed and constructed (preferably of smooth, impervious materials) so that cleaning and disinfection can be carried out effectively. Ideally, the area immediately surrounding the poultry houses and hatcheries should be paved with concrete or other impervious material to facilitate cleaning and disinfection.
- The establishment should be surrounded by a security fence to prevent the entry of unwanted animals and people.
- A sign indicating restricted entry should be posted at the entrance of the farm.
- Establishments should be designed to house a single species and a single production type. If not feasible, the establishment should be designed so that each flock can be managed as a separate batch.
- Poultry houses and buildings used to store feed, eggs, or other materials, should be constructed and maintained to prevent the entry of animals, wild birds, rodents, insects, etc.
- Where feasible, feed should be delivered to the farm from outside the security fence.[1]

Farm Operations

- All establishments should have a written biosecurity plan[2] to prevent contamination from any external sources. Personnel should have basic training in biosecurity relevant to poultry production and understand the implications to animal health, human health, and food safety.
- Traceability at all levels of the poultry production chain should be possible.
- Records should be maintained on an individual flock basis and include data on bird health, production, medications, vaccination, mortality, and surveillance. Records should be readily available for inspection on-site.
- A veterinarian should monitor the poultry's health.
- To avoid the development of antimicrobial resistance, antimicrobial agents should be used under relevant directions from the veterinary services and manufacturer's instructions.
- Establishments should be free from unwanted vegetation and debris that could attract or harbor pests.

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[1] Source: https://www.pngwing.com/en/free-png-yoozs

[2] Biosecurity basics for on-farm employees (i) Isolation (ii) Flow control (iii) Sanitation (iv) Cleaning and disinfection

- Access to the farm should be controlled to ensure only authorized persons and vehicles enter the site.
- Personnel and visitors entering an establishment should follow a biosecurity procedure and outer garments (coveralls or overalls, head covering, and footwear) should be provided. They should wash their hands with soap and water or sanitize them using a disinfectant, change footwear, use a boot spray, or use a properly maintained disinfectant footbath. The disinfectant solution in the footbath should be changed regularly to ensure its efficacy, following the manufacturer's instructions.
- Personnel and visitors should not have had recent contact with other poultry, poultry waste, or poultry processing plant(s).
- Any vehicle entering an establishment should be cleaned and disinfected following a biosecurity plan. Delivery vehicles should be cleaned and disinfected before loading each consignment of eggs or poultry.

A traditional village-level small-scale poultry house (Photo credit: Modhu Sudan Dey)

- Any equipment should be cleaned and sanitized before being taken into a poultry house.
- Whenever possible, the "all-in all-out" single age group principle[3] should be used. That means all chicks are to be brought to the farms at a time and after maturity to be sold out at a time as well.
- No animals should have access to other buildings, such as those used to store feed, eggs, or other materials.
- The water delivery system should be cleaned and disinfected between flocks when the poultry house is empty. The water should be of drinking quality for human beings.
- Birds for poultry houses should preferably come from disease-free breeder flocks and hatcheries.

[3] All-in-all out system mean that only poultries of one age are raised and all of them are sold at the same time.

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- Feed must be free from infectious diseases or germs.
- Feed should be stored in a manner to prevent access by wild birds and rodents. Spilled feed should be cleaned up immediately to remove attractants for wild birds and rodents. The movement of feed between flocks should be avoided.
- The litter in the poultry house should be kept dry and in good condition.
- Dead birds should be removed from poultry houses as quickly as possible but at least daily. These should be disposed of safely and effectively.
- Personnel involved in the catching of birds should be adequately trained in bird handling and basic biosecurity procedures.
- To minimize stress, poultry should be transported in well-ventilated containers and should not be overcrowded. Exposure to extreme temperatures should be avoided.
- Containers should be cleaned and disinfected between each use, or disposed of safely.
- When a poultry house is depopulated, it is recommended that all feces and litter be removed from the house and disposed of safely to minimize the risk of dissemination of infectious agents.
- If the litter is not removed and replaced between flocks, then the litter should be treated to minimize the risk of dissemination of infectious agents from one flock to the next.
- After the removal of feces and litter, the poultry house and equipment should be cleaned and disinfected.
- For poultry flocks that are allowed to range outdoors, feeders, feed, and other items that may attract wild birds should be kept indoors. Poultry should not be allowed access to sources of contamination, such as household waste, litter storage areas, other animals, stagnant water, and water of unknown quality. The nesting area should be inside the poultry house.

Infection Prevention and Responses

- When a flock is suspected or known to be infected, a veterinarian should be consulted immediately and, in addition to the general biosecurity measures described previously, management procedures should be adjusted to effectively isolate it from other flocks on the establishment and other epidemiologically related establishments.
- Personnel should manage flocks to minimize the risk of dissemination of germs to other flocks and establishments, and to humans. Relevant measures include handling of an infected flock separately or last in sequence and the use of dedicated personnel, clothing, and equipment.
- When infection has been confirmed, epidemiological investigations should be carried out to determine the origin and route of transmission of germs.
- Poultry carcasses, litter, feces, and other potentially contaminated farm waste should be disposed of safely to minimize the risk of dissemination of germs. The disposal method used will depend on the infectious agent involved.

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- Depending on the epidemiology of the disease, the results of a risk assessment, and public and animal health policies, the destruction or slaughter of a flock before the end of the normal production period may be used. When infected flocks are destroyed or slaughtered, they should be processed in a manner to minimize exposure of humans and other flocks to the infectious agent, as per recommendations of the veterinarian. Based on risk assessment, non-infected, high-risk flocks may be destroyed or slaughtered before the end of their normal production period.
- Before restocking, the poultry house, including equipment should be cleaned, disinfected, and tested to verify that the cleaning has been effective. Special attention should be paid to feed equipment and water systems.
- Microbiological monitoring of the efficacy of disinfection procedures is recommended when pathogenic agents have been detected in the flock that previously occupied the facility.
- Depending on the epidemiology of the disease, risk assessment, vaccine availability, and public and animal health policies, vaccination is an option to minimize the spread of germs. When used, vaccines should be administered under the directions of the veterinarian and the manufacturer's instructions. [4]

[4] Source: https://crystalcreeknatural.com/biosecurity-in-poultry/

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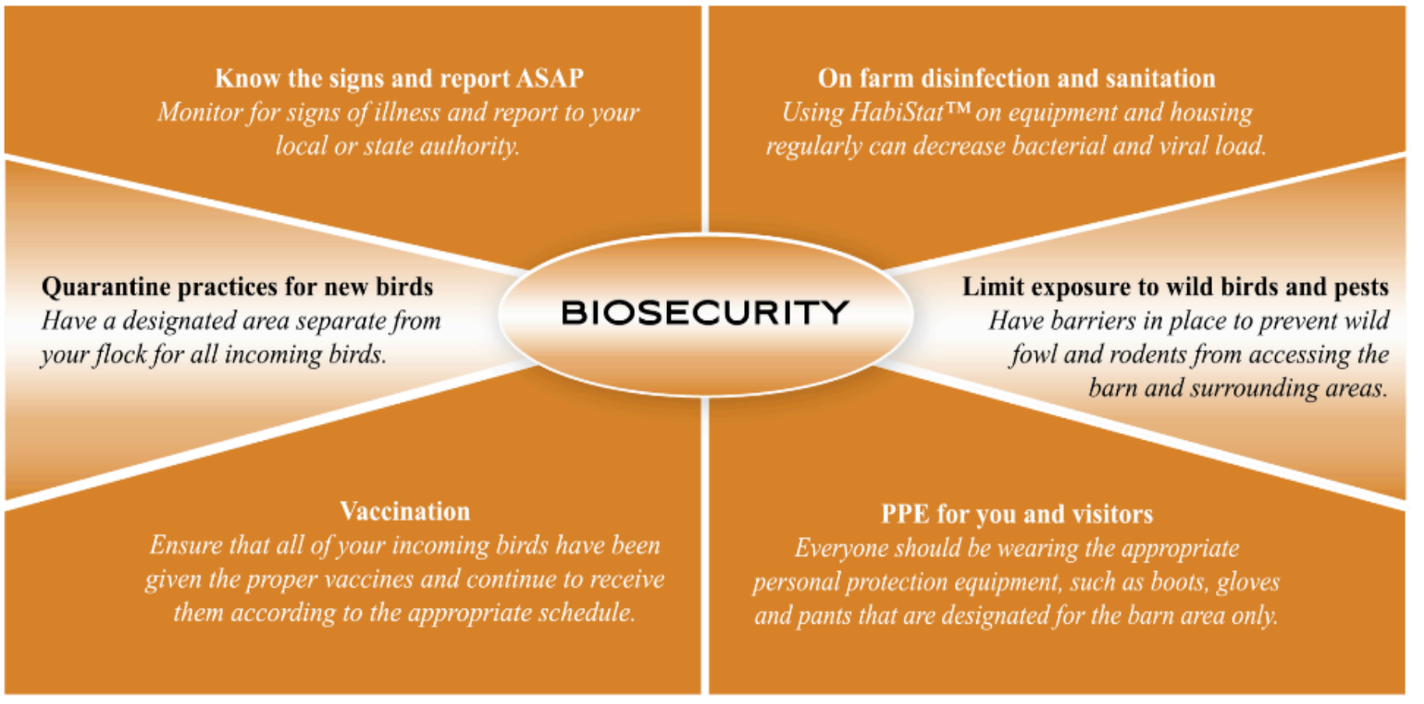
Know the signs and report ASAP
Monitor for signs of illness and report to your local or state authority.
On farm disinfection and sanitation
Using HabiStat™ on equipment and housing regularly can decrease bacterial and viral load.
Quarantine practices for new birds
Have a designated area separate from your flock for all incoming birds.
BIOSECURITY
Limit exposure to wild birds and pests
Have barriers in place to prevent wild fowl and rodents from accessing the barn and surrounding areas.
Vaccination
Ensure that all of your incoming birds have been given the proper vaccines and continue to receive them according to the appropriate schedule.
PPE for you and visitors
Everyone should be wearing the appropriate personal protection equipment, such as boots, gloves and pants that are designated for the barn area only.