KALRO
Kenya Agricultural & Livestock Research Organization

KCSAP
Kenya Climate Smart Agriculture Project

How to Prevent and Control Diseases in Chicken Flocks

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Introduction

Healthy chicken flocks produce more eggs and meat which make poultry keeping a rewarding venture. As such, farmers feel compelled to employ strategies that ensure their chicken flock meet these broad goals. Key among these strategies are adequate quality feed and a secure environment free from infectious diseases.

Preventive strategies should be in place to ensure no infectious diseases get introduced into healthy poultry flocks. This goes a long way in ensuring that the flock is healthy and is productive. On the other hand, control strategies, ensure that when chicken flocks get infected with diseases. These does not spread within the flock and to other flocks. The two strategies working together, enable farmers to keep healthy poultry flocks in order to achieve their key objective of production. The two strategies employed are biosecurity and vaccination as discussed.

1. Simple Biosecurity Practices for Smallholder Chicken Enterprise

What are biosecurity practices?

These are management practices that reduce the possibility of introducing diseases into a chicken flock. They include:

- Regular cleaning and disinfection of premises and equipment
- Proper handling of sick and dead birds
- Sourcing and handling of new birds
- Providing footbaths with disinfectant at the entrance of the chicken house
- Restricting visitors into the chicken house
- Controlling wild birds.

Cleaning and disinfection of chicken house and equipment

This ensures that the chicken houses are clean and remain disinfected at all times when they are in use. The activities involved are:

- Sweeping and blowing dust and other loose dirt off walls, nests, and ceiling cages
- Removing all feeds from feeders and water from drinkers at the end of the day
- Scraping all manure and accumulated dirt and dust from perches
- Removing all litter from the floor
- Wet cleaning the house by:
    - ✓ Soaking heavily soiled areas with water until the dirt softens for easy removal
    - ✓ Washing every surface with detergent by manual scrubbing with a moderately stiff brush
    - ✓ Rinsing surfaces with clean water
    - ✓ Drying the surfaces including the floor by opening all windows and ventilations
- Disinfecting surfaces by applying sprays using a garden sprayer using either iodine such as Betadine, chlorine compounds such as Jik, Virkon using the manufacturer's instructions.

NB: Five litres of diluted disinfectant should be used per every 200 square feet. Drinkers and waterers should be disinfected in one tablespoon of chlorine per 5 litres of warm water.

Proper handling of sick and dead birds

Sick and dead birds are sources of infection which can spread to the healthy flock if they are poorly handled. Measures should be put in place to isolate the sick birds and in the event of deaths, dispose off the dead birds through effective methods that limit contamination of poultry houses.

Farmers should:

- Separate the sick bird from the healthy flock immediately and place it in an isolation area far from the rest of the flock
- Consult a veterinarian to provide the correct treatment.
- Strictly adhere to instructions when administering treatment drugs.
- Use clean water to reconstitute drugs and change the water daily
- Note any changes in the behaviour of the bird following treatment.
- Feed sick birds always after feeding healthy birds.
- Only re-introduce the bird to the rest of the flock after completion of the treatment dose and full recovery.

If several birds are sick, it is advisable to:

- treat the whole flock
- clean and disinfect the chicken house.

If birds are dead, it is advisable to

- Collect and bury or burn the carcasses.
- Bury chicken carcasses at least 2 feet deep and place large rocks on top of the burial site to prevent predators from digging it out.
- Do not bury carcasses near wells, livestock ponds or other water bodies.
- Clean and disinfect the chicken house.
- In case all birds die, avoid the introduction of a new flock for a period of 2 months following the last death.

Sourcing and handling of new birds

New birds must be disease-free and must be sourced from reliable farms that take good care of their flocks. Farmers are advised to:

- Buy chicken from disease-free farms which have vaccination records.
- Do not buy chicken for rearing from bird markets.
- Quarantine new acquisitions for at least 14 days before introduction to the rest of the flock.
- Observe for symptoms of disease, deworm, treat newly acquired birds with Dudu dust if they have parasites during the 14 days of quarantine.

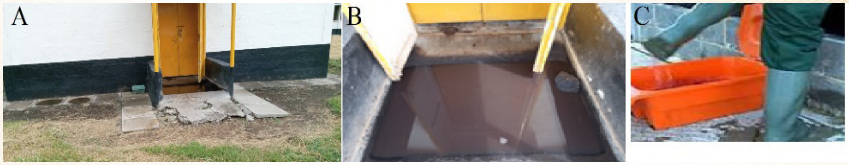
Visitor restrictions

- Restrict visitors into the chicken houses and refrain from visiting other chicken houses.
- Only when necessary should visitors enter the chicken house after changing clothes to farm overalls and footwear.

Managing Footbaths

- A stainless-steel basin placed at the entrance of the chicken house can be used for this purpose.
- Fill the basin with disinfectant mixed according to the manufacturer's instructions.
- Change the disinfectant at least once a week.
- Change the type of disinfectant every 3 months to prevent resistance.

NB: Use effective disinfectants such as Kerol or lysol. For Kerol, use 100ml in 30litres of water for Lysol, use 250 ml in 30litres of water.



Different footbaths at the entrance of the chicken house. A- permanent concrete footbath; B-with disinfectant C- simple footbath made of basin with disinfectant

Controlling wild birds

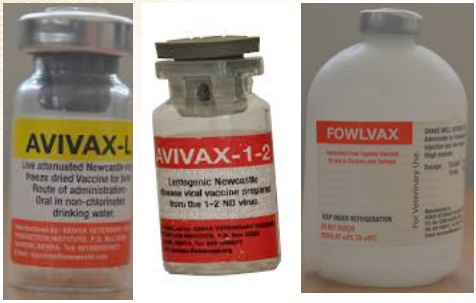
- Avoid contact between wild birds and chicken to prevent the introduction of diseases from the wild birds to the flock.
- Cover the chicken house with wire netting to keep off wild birds.

2. Vaccination

Vaccination of birds as per schedule is an important preventative and control measure that all poultry farmers must observe.

Why do we vaccinate chicken?

- Vaccination is done to protect chicken from important diseases
- Poultry vaccines are available for the following diseases:
  - ✓ Newcastle disease (examples Avivax-L, Avivax I-2 and Avivax-F from KEVEVAPI)
  - ✓ Infectious bursal disease (Gumboro)
  - ✓ Fowl pox
  - ✓ Fowl typhoid (Fowlvax from KEVEVAPI)



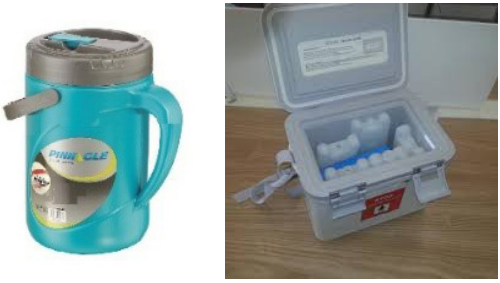
Vaccines

Where to buy vaccines

- Vaccines should be bought from Agrovet shops that have refrigerated storage facilities for vaccines.
- Poorly stored vaccines will not protect the chicken against the intended disease.

Vaccine handling and transportation

- Transport vaccines in ice packages or cool boxes with ice packs until the point of use.
- Do not store cool boxes or ice packages containing vaccines in direct sunlight.
- Use vaccines immediately after removal from the cold storage.



Transport equipment for vaccines to maintain cold storage

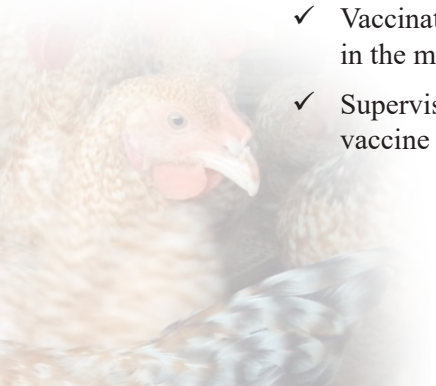
How to mix vaccines

- Use distilled water to reconstitute vaccines.
- Boil tap water and leave it standing for 24 hours to release the chlorine or add skimmed milk at 2-2.5g/litre of water to fix the chlorine gas 20 minutes before using the water in vaccine reconstitution.
- Estimate the amount of water needed for the constitution of the vaccination.
- Remove the metal caps from the vaccine vials.
- Remove the rubber stopper and rinse the entire content of each vaccine bottle.
- Mix the vaccine gently but thoroughly to ensure even distribution of the vaccine.

NB: For eye and nasal drops, 0.3 to 0.5 ml of the vaccine per chicken is adequate. For water-administered vaccine, 100 to 200 ml of water mixed with the vaccine is adequate for 100 birds.

How to use vaccines

- Vaccination in drinking water
    - ✓ Vaccines in drinking water should be administered within one and a half hours.
    - ✓ The vaccine should be distributed in different drinkers to ensure all chicken drink
    - ✓ To enhance drinking withhold water from chicken for at least 2-3 hours prior to vaccination
    - ✓ Vaccinate during the cool hours of the day, either early in the morning or late in the evening.
    - ✓ Supervise the drinking to ensure all birds access the vaccine



Vaccination of chicken through drinking water

Vaccination through eye or nasal drops

- Use a dropper to administer the vaccine into the nose or eye of the chicken
- After administering the vaccine in the eye or nostril, hold the beak of the chicken until you observe a swallowing reflex from the bird.
- In case of spillage of the vaccine drop outside of the eye or nostril, repeat administering the vaccine immediately.

Vaccination of chicken through the eye drop method

Vaccination through wing-web stab

- This method is used for the Fowl pox vaccination
- The vaccine is administered into the skin thickness

- A special two-pronged grooved applicator is used
- Do not expose fowl pox vaccine to the eyes or mouth of the chicken.
- Care must be taken to remove all used vaccine vials from the chicken house because if birds peck on these, they could get fowl pox wounds in their mouth.
- This should be done with the help of a veterinarian.

Vaccination of chicken using the wing-web method

Vaccination through injection

- This method involves injection of the vaccine into the muscle (intramuscular) or under the skin (Subcutaneous)
- This should be done with the help of a veterinarian

Vaccination of chicken through breast injection

Important considerations during vaccination

- Do not vaccinate sick chicken.
- Keep vaccination records.
- Do not use expired vaccines.
- Discard all reconstituted vaccine left after vaccination
- Observe correct vaccine storage, reconstitution and administration procedures.
- Maintain a cold chain to keep the vaccine protective.
- Vaccinate chicken during cool hours of the day (morning or evening).
- Do not use water with chemicals when mixing vaccines
- Vaccines are specific to a disease and should be done according to the recommended schedule.
- Vaccines requiring injections or wing stabs should only be administered by trained professionals due to the associated risk of injuring the birds during vaccination.
- Consult a veterinarian when in doubt.

Recommended vaccination schedule for chicken

Age	Vaccine	Route of administration
1 day old	Marek's disease Newcastle disease and infectious bronchitis (given in commercial hatchery)	Subcutaneous for Marek's Aerosol spray
Day 7	Newcastle disease (if not vaccinated in the hatchery)	Eye drop or drinking water
Day 10	Infectious bursal disease (Gumboro)	Drinking water
Day 18	Infectious bursal disease (Gumboro)	Drinking water
3 weeks	Newcastle disease vaccine	Eye Drop/drinking water
6 weeks	Fowl pox vaccine	Wing web jab

8 weeks	Newcastle disease vaccine	Eye Drop/drinking water
8 weeks	Fowl typhoid	Intramuscular injection
Every 3-4 months	Newcastle disease vaccine	Eye Drop/drinking water

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