

Health management in backyard poultry under field conditions

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Rural/Backyard/Family/Scavenging poultry farming is a traditional system of rearing native or nondescript breeds/ rural poultry varieties. In our country it is characterized by small units with 5-15 birds per household, primarily reared to meet dietary requirements, instant supplementary cash as per the need this mitigating the risk.

Key words: Backyard poultry, Health management, Poultry

INDIGENOUS chicken are thought to have tropical adaptability and disease resistant traits. From the ages, these native chicken breeds are exposed to free range environment. Despite their frequent exposure to marshy and contaminated areas where the incidence of potential pathogens and heat is relatively high, the native germplasm is found to be comparatively resistant. However, losses in the backyard poultry are

mainly attributed by higher early chick mortality; lack of supplementary feeding in some areas; increased predation risk and; some infectious diseases that affects health. In addition, lack of facilities for scientific management of the chicks during the initial 4 to 5 weeks in the village conditions and improper veterinary services at the rural corners also contribute for significant losses in backyard poultry. This article aims to address the potential health risks in

backyard poultry and their tackling measures under field conditions.

Diseases commonly encountered in backyard poultry system

Viral diseases

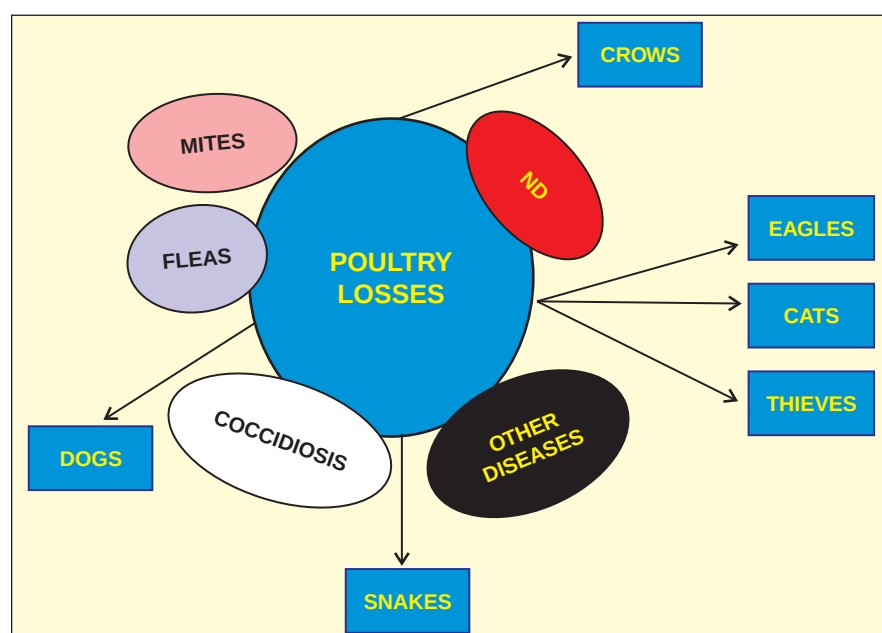
Ranikhet/Newcastle disease: Newcastle disease occurs in various forms and various severities like velogenic, mesogenic and lentogenic. Velogenic form of NDV is considered to be endemic in village chickens. Clinical signs include greenish diarrhoea, torticollis and 100% mortality; respiratory and nervous signs, drop in egg production, high mortality.

Fowl pox: Scabs will form only on feather (panka) less areas like head and feet.

Avian influenza/bird flu: Highly zoonotic disease of viral origin and can cause severe mortality, respiratory distress, blue pigmentation of shanks etc.

Parasitic infestation

Ecto and endoparasitic infestation is very common in village chickens because of their scavenging habits. Ticks, mites and fleas often affect the birds under backyard conditions because most of the birds are kept under night shelter made of bamboo,



Causes for mortality in village chicken



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straws wood etc. which are the potential hidden place for those.

Bacterial diseases

Infectious coryza: It mainly affects respiratory system of poultry and transmits by bird to bird contact. It causes swollen head, eyes with nasal discharge etc. It is occasionally seen in native birds.

Pasteurellosis: It is often seen in native chicken. It causes depression in birds, reduced feed intake, diarrhoea (sometimes), ocular/nasal discharges etc.

Early chick mortality

Highest mortality is seen during brooding up to 6 weeks and may be due to its smaller body weight of chicks. Many factors are responsible for this, chilling due to lack of adequate heat and unabsorbed yolks are most common.

Control measures

Vaccination approach

Thermostable vaccines for ranikhet disease: Among all the above, vaccination for Ranikhet/Newcastle disease must be given prime importance, because this disease is the single most constraint for backyard chicken production. Since maintenance of cold chain in villages is highly impossible, thermostable vaccines are the only viable option. Generally, these vaccines are stable at 37°C and can be kept at this temperature for a period of 10 days. However, they must be protected from direct sunlight.

Oral pellet vaccines: Vaccine contains live D58 strain of Newcastle disease virus in pellets made up

Vaccination calendar for rural poultry

Age	Name of the Vaccine	Route	Dose
0–1 Day	Marek's Disease Vaccination (Generally be done at hatchery at the time of chick delivery)	S/C at neck region	0.2 ml
5–7 days	Ranikhet Disease Vaccine* (D-58/ Lasota/B1/F)	Intra ocular/Intra nasal	One drop each
28 days	Ranikhet Disease Vaccine	Intra ocular/Intra nasal (D-58/ Lasota/B1/F)	One drop each
6 th week	Fowl Pox Vaccine	Wing web or S/C	0.1-0.2 ml
8 th –10 th week	Ranikhet Disease Vaccine (R ₂ B)	S/C or I/M	0.5 ml

*These two vaccines must be repeated at every 6 months interval

Medication in backyard poultry

Medication Calendar for Brooding Chicks

Age	Medicines /Probiotics /Growth Promoters
Days 1-3	Electrolytes or either sugar/glucose solution with a pinch of salt. Jaggery (gud) may also be provided @ 1 kg per 1000 chicks
Days 4-10	Probiotic/Prebiotic course (provide curd/dahi @1 kg per 1000 chicks). Curd must be kept in sun light at least 30 min before feeding to chicken.
Days	Water sanitation: 5% glacial acetic acid/vinegar/sirka: 1 ml/5 lit of water. Sirka (jamun or ganne)

village poultry flocks at three to four months interval also provide protection for newly hatched chicks.

Biosecurity Tips for Better Health Management in Backyard Poultry

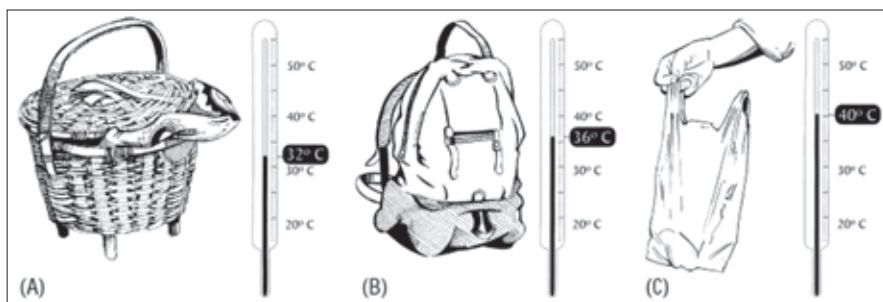
lactose, amaranthus dye and starch. This is highly useful and easy to handle and administer. Dose rate is 2 pellets/bird of more than 10 days old and must be administered within 2-3 months interval. Product is available as vials containing vaccine granules of 25 doses. Under field conditions, vaccines can be administered via drinking water @ 5-7 ml/bird or in finely ground grains @ 10 g/bird preferably in morning. Millets, sunflower, rapoko and sorghum are best suited for this. Bore-hole and rainwater seems to be more suitable as for vaccine use than well water. The vaccine should be given twice, 2–3 weeks apart initially, then later at least every 2–3 months. Vaccinating

Feed and water management:

Water sources like ponds and rivers may be treated with chlorine.

Additional supplementary feeding with maize bran, grounded grains, ground sea shells, green leaves, worms, insects and their larvae improves production, boosts immunity and vaccination efficiency. Feeding of insects with high protein content like grasshoppers, earthworms, termites, mermaid cricket meal and algae like spirulina, azolla offers higher tolerance to combat viral diseases. Creep feeding of chicks during initial stages allows access to feed, offers shelter and protects from air-borne predators.

• **Health management:** Clinically



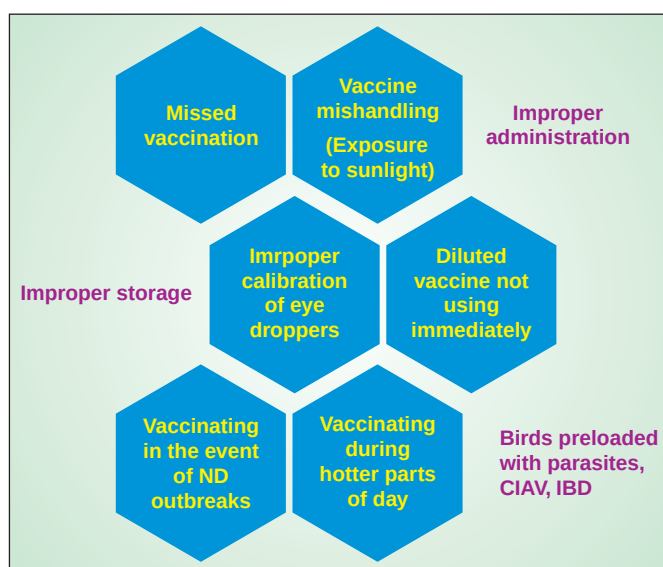
Demonstration of packaging the vaccine for carrying out vaccine in village conditions
Note: Protection from sun light while maintaining low temperatures (Adapted from FAO)

Routes of Vaccination

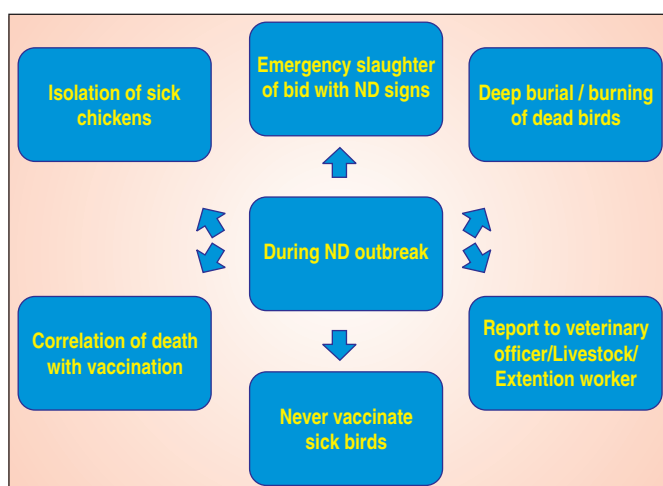


Administering live vaccine to a day old chick through intra-ocular route (eye)

Closing of eyes in chick indicates that vaccine is successfully applied in the eye



Reasons of vaccine failure



During disease outbreak

can be eradicated with quarantine and movement control, depopulation of all infected and exposed birds, and thorough cleaning and disinfection of the premises. Effective disinfectants include chlorhexidine, sodium hypochlorite (6%), phenolic disinfectants and oxidizing agents.

- **Flock management:** Zero contact models must be ensured between rural chicken and other poultry like guinea fowl, ducks, turkeys, Japanese quail, crows and other migratory birds. Proper flock management would not be feasible in many instances since most of villagers raise free-ranging poultry for their own consumption for two reasons, i) fixed age selling of birds is not practiced in villages to ensure year round availability of meat, and ii) laying hens are generally retained in the villages for renewal of chicken population. Practicing indoor village chicken production especially during nights mitigates exposure to domestic animals and wild birds. Live infected chicken are the most likely means of introduction of diseases into village populations and the live bird markets are probably the major source of infected poultry. Hence contact must be minimized with vehicles, personnel rearing rural and commercial poultry and working in wet markets, dogs and cats (those fed on dead chicken carcass). Avoid visiting wet markets and live bird markets frequently. Never take chickens showing signs of illness to wet markets or live bird market and no back tracking of unsold chicken from markets. Burning or deep burial disposal method of dead birds is one of the strongest recommendations and inappropriate implementation of this may increase the risk of ND infection. Practice of marketing sick or dead birds should be terminated. Backyard stock must be purchased from known and regular stock sources that are considered to be disease free. Chicks can be procured from neighbors flock, KVKs, CPDOs, State animal husbandry/ State agricultural poultry farms rather than live bird markets or brokers.

- **At farm level:** Outbreaks

Herb	Dose and usage method
	<i>For cough and cold</i>
Turmeric	1/2 teaspoon per one liter water
Garlic cloves	1 clove/bird/day, crushed and added to feed
Garlic and turmeric	Crush together 7-10 cloves of garlic and a fingernail sized piece of dried turmeric rhizome. Mix this amount in the poultry feed every day. This is sufficient for 10 birds.
Garlic, Onion, Cumin (jeera) Fenugreek (methi) Turmeric	Around 7-10 cloves of garlic, 1 onion bulb, 5-10 g (1/4 handful) of cumin seeds, 1/4 handful of fenugreek seeds. Small piece of dry turmeric rhizome (haldi prakand). Grind these ingredients together and mix in the feed. Give for 2-3 days. Dose sufficient for 10 birds.
<i>Sesbania aegyptiaca</i> / janathi	Grind 5g and mix into feed
<i>Myristica fragrans</i> / jathiphala fruit	Grind one-fourth of a dried mace.
<i>Azima tetracantha</i> /needle bush/Kanda-gur-kamay	Grind a handful of leaves or roots and add to feed
<i>Trigonella foenum graecum</i> (fenugreek/ methi)	Soak 10 g of seeds in boiling water, cool and give as drinking water
Onion (pyaz)	1/4 th chopped onion per bird
Tulasi (<i>Ocimum sanctum</i>) leaves	Boil a handful in 1 lit water and provide in water. Leaves can be fed in diets.
Ginger/Adhrak	Pound 10 g of fresh ginger rhizome, squeeze out the juice and mix the juice with 250 ml water and 10 g brown sugar. Allow to cool and store in a clean, dry bottle. Add 3 tablespoons of the mixture in the drinking water each day for 10 birds.
<i>Andrographis paniculata</i> or kalmegh	Boil with 2 liters of water till 1 liter is left. Soak 2 handfuls of uncooked milled rice in this water overnight.
	<i>For Diarrhoea (Dasth)</i>
Ginger/Adhrak	As described previously
For rehydration purpose	Give the water left after cooking rice (kanjee) instead of drinking water. This helps bind the stomach and is used to rehydrate the sick birds. Give refined wheat flour as feed as long as the diarrhea lasts.
	<i>Parasitic Infection (Worms)</i>
Raw papaya sap (contains benzyl isothiocyanate-show efficacy towards roundworms)	Mix 5 parts of sap with 1 part of water. Give 2-3 teaspoons of liquid (10-15 ml) for every 10 chickens for 5 days
Heat air-dried <i>Areca catechu</i> (supari) nuts	Put a pinch of powder of ground areca nuts in the mouth of each bird once a day for a week.
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Fresh turmeric rhizome	Squeeze out juice after grinding 250 g and use it as drinking water. Give this medication once every month.
<i>Centratherum (Vernonia) anthelminticum</i> (Black Cumin/Kallijeeri)	Seed extracts showed efficacy against some ascarid roundworms (e.g. <i>Toxocara vitulorum</i>) and thread worms (e.g. <i>Strongyloides</i>).
Raw Pumpkin Seeds (<i>cucurbitacin</i> paralyses tapeworm and round worm)	Offer <i>ad lib.</i> (as much as bird takes)
Garlic	Six fresh cloves of garlic and mix them into the feed. Give this quantity to 10 chickens for 1-2 days or Garlic 3% of the feed. Provide monthly once.
	<i>Parasitic Infection (Ticks, Mites and Lice)</i>
	<i>In House Application</i>
Dry leaves of <i>Diospyros ebenum</i> /Ebnus/ebony	Burn the plants listed below near or under the poultry house so the smoke goes into the house. The amount of leaves to be burned depends on the size of the house. This will drive away lice and ticks. Keep all birds and animals away from the smoke. People should keep away from the smoke, too.
Dry tobacco leaves (do not allow birds to eat tobacco)	
Mosquitoes can be controlled by removing stagnant water, pouring oil or kerosene on stagnant water. Hanging a bouquet of <i>Ocimum sanctum</i> (tulasi) leaves inside the poultry house can also help in preventing the insects and worms and there by disease.	
	<i>For Application on Bird's Skin</i>
Fresh or dry tobacco leaves	Rub any of these remedies listed below on the birds' skin. Use as much as needed to cover the entire skin. For scaly leg mites, apply petroleum jelly or linseed oil, or mineral oil liberally to the legs and these products smother the mites.
2 parts neem (leaves or oil), 1 part salt and ash	
1 and 2 parts salt and mustard oil	
Crushed fresh <i>Vitex negundo</i> leaves.	
Pounded fresh or dried <i>Annona squamosa</i> (seethaphal, custard apple) seeds.	
Put 1 handful of fresh lemongrass (<i>Cymbopogon citratus</i>) in the nest before the hen starts to lay.	
	<i>During Various Disease Conditions</i>
Respiratory tract infections (with difficulty in breathing)	1. Take 1 kg fresh neem and tulasi leaves, 100 g pepper and garlic and boil for 1 hour. Collect all the water and use @ 1 ml per 1 liter of water. 2. Provide black-pepper as 1 seed/chick and 2-3 seeds for mature birds. Force feed for 3 days.

Contd.

Herb	Dose and Usage Method
Newcastle/Ranikhet disease	3. Chilli pepper (Capsicum)/Lal mirch: Adult birds can be force fed with 5-10 seeds per day for three days and younger birds with 2-3 seeds. Allowing bird to inhale camphor (Kapoer) by keeping near to the nostrils or it can be dissolved completely in oil and mix it in drinking water. 1. Nevertheless they are reported to be beneficial during onset of ND symptoms but not during course of disease. Oral administration of ground garlic paste, onion, salted chillies, white vinegar and bark of the mango/ tamarind tree and 3-4 drops of potassium permanganate in drinking water will relieve the symptoms to some extent in birds. 2. Feeding of garlic (lahsun) cloves or onion (pyaz) to the affected birds may help relieving the infection pressure. 3. Provide 1 tsp of turmeric powder can be mixed in 2 litre water. 6-7 garlic cloves can be ground and mixed in feed for 10 birds).
Infectious bursal disease/Gumboro disease	1. Wash the aloe vera leaves thoroughly with warm water, remove the spines and separate gel from leaves and mix thoroughly. For use, mix 3 ml per litre water and administer to affected birds daily. 2. Feed shade dried neem leaves to the affected birds. 3. Providing lemon water to birds also relieves symptoms of Gumboro disease.
Heat stress	1. Give water from young coconuts as drinking water. 2. Mix 4 teaspoons of sugar/50 g of jaggery in 1 litre of water. 3. Mix one lemon for 3 litre water.

Newly introduced birds must be quarantined for two weeks before joining the flock to allow a time lag for any disease to reveal itself.

SUMMARY

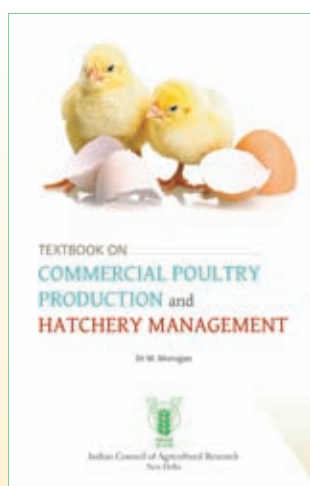
Of several infections, Newcastle disease and Avian influenza poses a potential health risk for the backyard poultry and was the major cause for mortalities. In village chicken production, it is single greatest constraint limiting its productivity and development throughout the

developing sphere. Several outbreaks of avian influenza were reported in backyard poultry in the country that result in massive culling of birds in villages. Periodical vaccination once in 6 months with thermostable vaccines against ND may help reducing the infectious pressure. Indigenous traditional knowledge using locally available herbs are the most commonly used for treatment of common ailments in village production system. However, practicing of village biosecurity by the

farmers is important for the prosperity of rural/backyard poultry production. It is also important to protect the birds from predation which is a commonly reported loss in backyard system.

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