DUCK and COMMON DISEASES

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BEYOND VETERINARY CARE

PREFACE

Duck farming plays an essential role in Vietnam's livestock industry. Ducks are raised not only for daily food supply but also as an export-oriented commodity with high economic value. To achieve sustainable productivity and quality, disease prevention and control must always take precedence over treatment.

The booklet **"Ducks and Common Diseases"** provides farmers, veterinarians, and animal health officers with fundamental knowledge about common infectious, parasitic, and nutritional diseases in ducks. The content is compiled from many years of field experience, combined with updated scientific references and veterinary research, to help readers understand disease mechanisms, recognize symptoms, and apply effective prevention and treatment measures.

This publication aims to assist in practical diagnosis and management in duck farms of various scales. Despite careful compilation, errors or omissions are inevitable. The authors welcome comments and feedback from colleagues and readers for future improvement.

Hatchery hygiene, vaccination, and strict biosecurity are emphasized throughout the book as key principles to protect flocks and enhance production efficiency.

On behalf of the author group

DR. NGUYEN HUU VU

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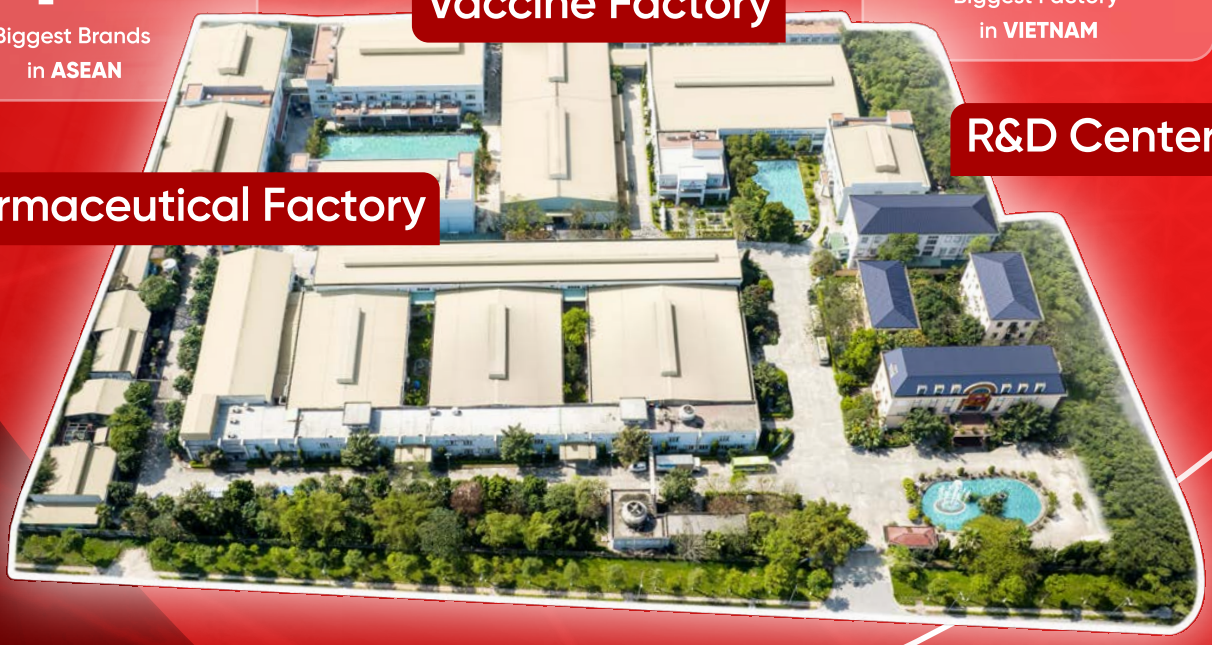


16+
GMP-WHO Certified Production Lines

37
Years of Excellence in Veterinary Manufacturing

30+
Export Markets Worldwide

BEYOND VETERINARY CARE

I. SOME DUCK BREEDS COMMONLY RAISED IN VIETNAM

1. VIETNAMESE NATIVE DUCK (TÀU DUCK/CỎ DUCK)

The Vietnamese native duck, also known as "Tàu duck" in Southern Vietnam, is raised widely throughout the country, accounting for nearly 80% of the total duck population.

Its feathers are brownish or yellow, the beak and legs are slender and light-colored, and the eyes are bright and alert. The body is small and compact, the chest is narrow, and the abdomen is tight.

Adult body weight: male: 1.4–1.6 kg, female: 1.3–1.5 kg at the start of laying. Each duck can produce about 200–250 eggs per year, on average 170–180 eggs, each weighing 60–70 g. Fertility rate is high.



2. BẦU DUCK

This is a native Vietnamese duck breed well known for both meat and egg quality, especially before foreign breeds were introduced. Bau ducks have a firm, compact body, rectangular shape, medium-length neck, short and moderately wide beak, broad chest, deep belly, and feathers of various colors.

They are of medium size: mature males weigh 2.0–2.5 kg, females 1.7–2.0 kg. The ducks start laying eggs at 154–160 days of age; annual egg production averages 165–175 eggs, each weighing 65–73 g. Bau ducks have good foraging ability and are well suited for traditional free-range systems.

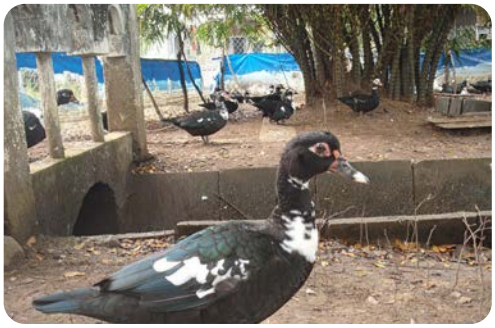


3. KY LUA DUCK

Ky Lua ducks originated from the Ky Lua region (Lang Son province) and are commonly raised in the northern mountainous provinces of Vietnam and parts of the lowlands.

Their head is small, plumage color varies from yellow-brown to gray or dark greenish-gray. The body is elongated, the neck long and slightly curved, and the abdomen full and deep. This breed tolerates cold well and can be raised in cool, highland climates where temperatures are low. Ky Lua ducks are good foragers, have fast feather growth, and are highly fertile. Egg laying begins at 150–180 days of age, with annual production of 110–120 eggs per duck, each weighing 70–75 g.

The drake's weight at mating is 1.8–2.0 kg, and the duck's weight is 1.7–1.9 kg.



4. PEKIN DUCK

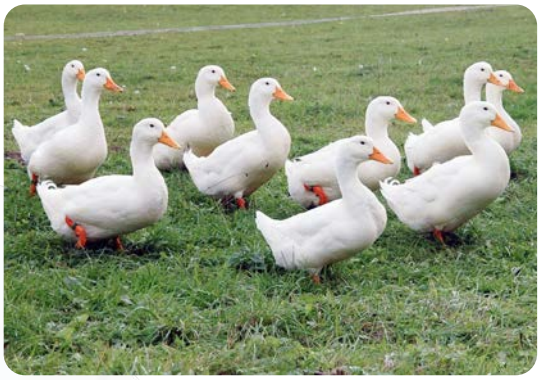
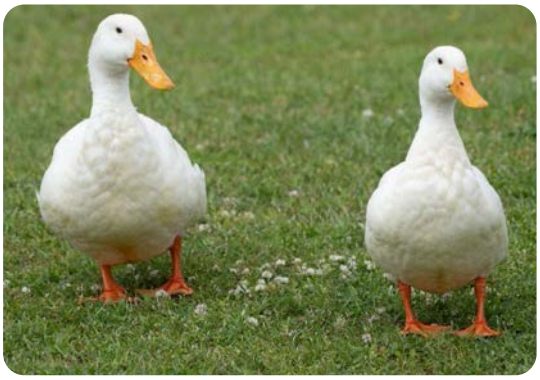
Originating from China, the Pekin duck was imported into Vietnam in 1960 and later from Germany in 1987. It is a high-yield meat breed with white plumage.

The duck has a long, broad body, large head, wide forehead, orange bill, and orange feet. The body is upright and balanced, with deep chest and well-developed muscles.

Peking ducks have a strong appetite and accumulate fat easily, making them suitable for large-scale fattening.

At maturity, males weigh 3.5–4.0 kg and females 3.3–3.5 kg. They grow quickly, with well-developed muscles and tender, tasty meat (high economic value).

Egg production: 115–120 eggs/hen/year; egg weight 80–100 g.

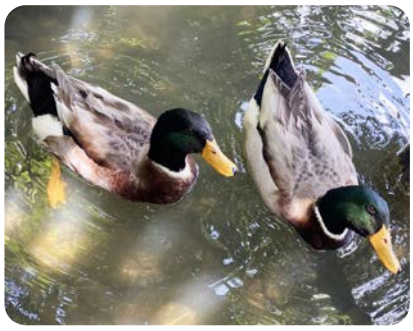

5. CO LUNG DUCK

This is a long-established local duck breed, raised mainly in five communes: Co Lung, Lung Niem, Lung Cao, Thanh Lam, and Thanh Son in Thanh Hoa province.

Appearance-wise, Co Lung ducks resemble Tàu duck but have distinct features: short neck, glossy feathers, curled feathers around the neck, and greenish sheen on the wings. Their plumage is mostly black with a green-blue shine, while some have white patches.

Co Lung ducks start laying eggs at 5–6 months of age.

Average body weight at first laying: 1.6–1.7 kg; after 4–5 months of rearing, average weight reaches 1.6–2 kg.


6. DAI XUYEN DUCK

The Dai Xuyen duck, also known as the "Sea Duck 15," is a dual-purpose breed raised for both meat and egg production. This breed has excellent adaptability, thriving in both brackish and freshwater environments, and is well known for its high-quality meat.

Dai Xuyen ducks have dark brown feathers. Males are easily distinguished by the bluish-green sheen on their heads and necks. Their plumage is dark brown with white patches; males are darker than females, have well-developed bodies, and begin molting later.

The average adult weight ranges from 2.8–3.0 kg, and the annual egg production averages 230–240 eggs per hen. Two-month-old ducks reach a weight of about 2.5 kg, and after three months of rearing, each bird weighs 3.0–3.2 kg.

At 20–21 weeks of age, ducks weigh 2.5–2.7 kg per bird, lay 235–247 eggs per year, with an average egg weight of 82–86 g.



7. KHAKI CAMPBELL DUCK

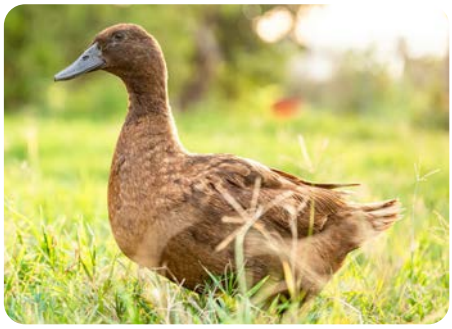
Originating from England and selectively improved in the Netherlands, the Khaki Campbell is a high-yielding egg-laying breed. It was first imported into Vietnam in 1958, with larger imports during the 1970s, and more recently from Thailand.

Khaki Campbell ducks are highly adaptable and perform well in all regions. They have excellent egg production, with a hybrid vigor rate ranging from 0.58–1.89%.

Their plumage color, legs, and beak are uniform. Females have light brown feathers, while males are darker with olive-green bills. Male ducks have dark green bars across their heads, necks, wings, and tails; females have dark brown-gray heads and necks.

The Khaki Campbell is classified as a super egg-laying breed, characterized by small body size and early maturity. Ducks begin laying at 130–145 days of age, with an average egg production of 252.5 eggs per hen per year (up to 264 eggs in optimal conditions), and an average egg weight of 65–70 g.





8. C.V SUPER M DUCK

C.V Super M is a high-performance meat-type duck breed imported from England in 1989.

It has orange-yellow shanks and skin, with white plumage. The body is rectangular in shape, with a large head, flat back, long neck, deep and broad chest, and strong legs.

Under Vietnamese farming conditions, the breeder ducks reach sexual maturity at 24–26 weeks of age. The average body weight of females is 3.0–3.2 kg. The annual egg production is 170–180 eggs per duck, with an average egg weight of 82–85 g.

C.V Super M ducks are highly adaptable to various regions. When crossbred with local duck breeds under free-range conditions, hybrid ducks reach 2.2–2.9 kg live weight at 75–90 days of age.

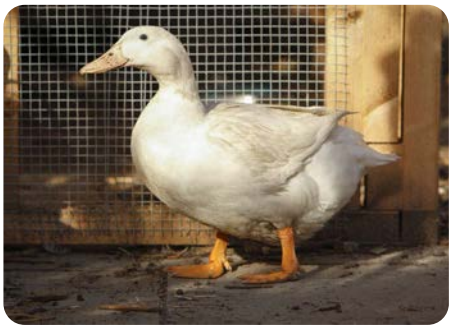


9. CHERRY VALLEY DUCK

The Cherry Valley duck originated in England and was imported into Vietnam in the 1960s and later from Hungary and the UK (1982–1983). This breed is the result of crossing native Vietnamese ducks with imported Peking lines to improve growth rate and meat yield. It has white plumage, broad chest, long body, and orange bill and legs. Cherry Valley ducks grow fast, have strong resistance, and are highly adaptable to various farming conditions.

At maturity, drakes weigh 3.2–3.5 kg and females 3.4–3.7 kg.

Average egg production: 147–152 eggs/year, with egg weight 72–76 g.


10. INDIAN RUNNER DUCK

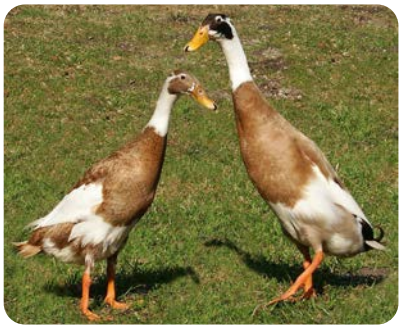
The Indian Runner duck has various color groups such as brown, white, black, and chocolate. It is a light-bodied breed; mature drakes weigh 1.6–2.2 kg, and ducks weigh 1.4–2.0 kg.

This breed is one of the most prolific egg layers, producing 225–325 eggs per duck per year, with egg weight 65–70 g.

The body is slender and tall, with an upright carriage and long, thin neck. The legs are positioned far back on the body, allowing the duck to stand nearly vertical.

This structure helps them move quickly and gracefully when walking or running.

They have short shanks, strong bones, and do not exhibit leg deformities when active.



11. GRIMAUD HYBRID MEAT DUCK

The Grimaud duck, also known as the French hybrid super meat duck, was developed by the Grimaud Group in France. It is an industrial breed designed for fast growth, high feed efficiency, and lean meat yield. The Grimaud duck grows rapidly, maturing for slaughter in 56–60 days with a high proportion of lean meat and low fat content.

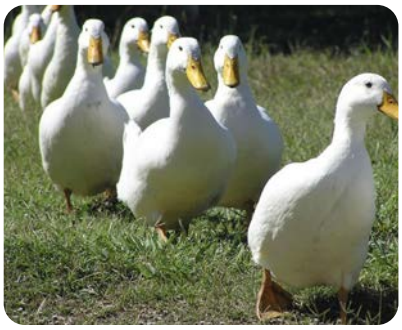
Average slaughter weight: 3.0–3.2 kg per bird at 45 days of age.

The breed has white feathers, broad breast, and good muscle tone, with high dressing percentage and delicious meat quality.

On average, one Grimaud duck can yield up to 45% breast meat.

There are two main strains: one specialized for meat production and another for egg production.

On average, 46–50 generations of Grimaud ducks can produce 260 ducklings per year.



12. MUSCOVY DUCK

The Muscovy duck, also called “Ngan” in Vietnam, originated in South America and has long been domesticated. In Vietnam, Muscovy ducks are raised mainly in the Red River Delta and the Mekong Delta.

They have white or black-and-white plumage, broad bodies, and strong, muscular legs. Muscovy ducks are hardy, easy to raise in both household and semi-intensive systems.

Average live weight: drake 4.3–4.5 kg, duck 1.8–2.8 kg.

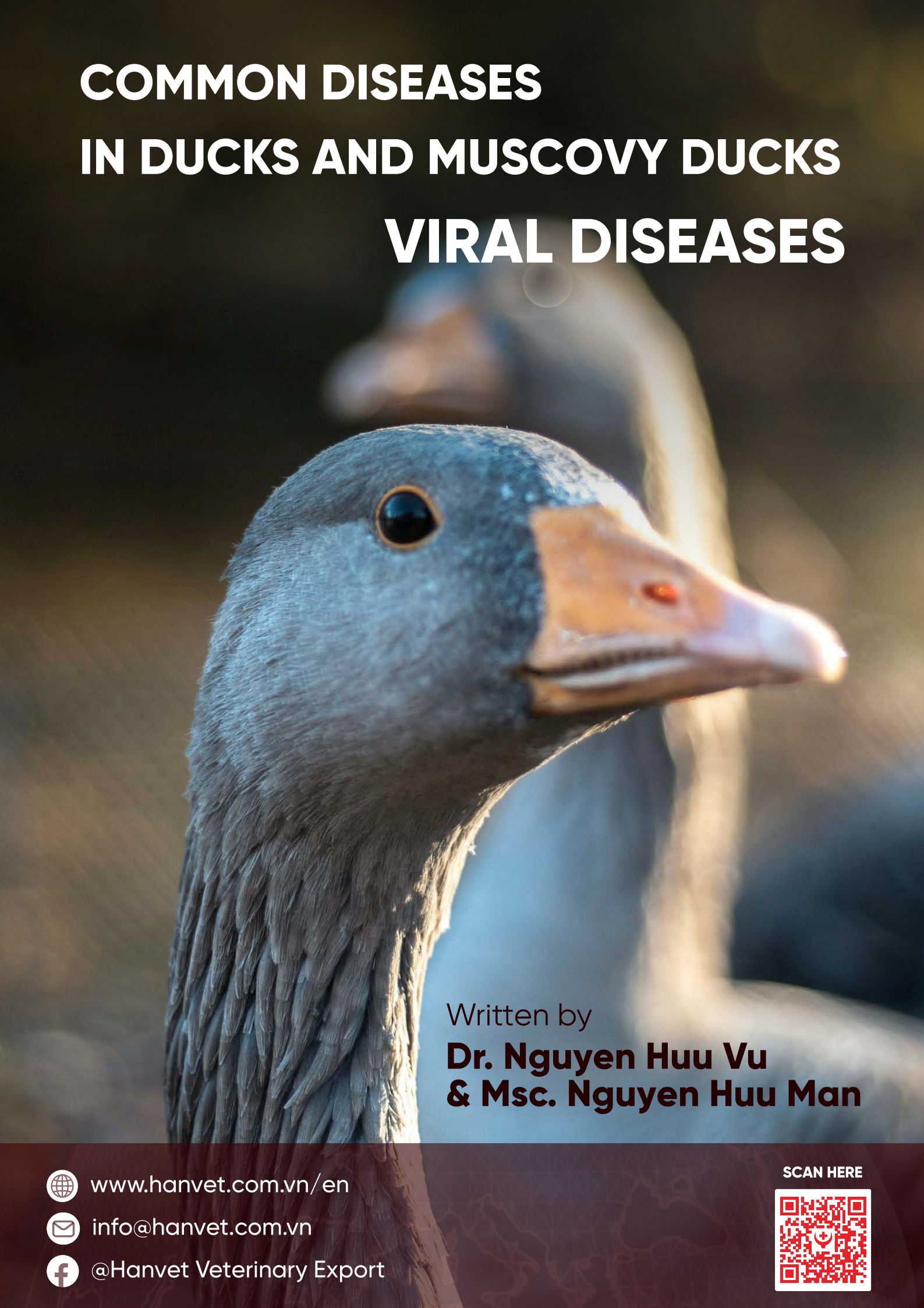
Egg production: 80–160 eggs per hen per year.

The meat is lean, flavorful, and considered of high culinary value.



COMMON DISEASES IN DUCKS AND MUSCOVY DUCKS

VIRAL DISEASES



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DUCK PLAGUE (DUCK VIRUS ENTERITIS)

A. EPIDEMIOLOGY

Duck plague, also known as duck viral enteritis, is an acute and highly contagious viral disease affecting ducks, geese, and swans.

It is caused by a herpesvirus, to which both domestic and wild waterfowl are highly susceptible.

The disease can occur in ducks of all ages and often causes sudden outbreaks with high mortality in affected flocks.

B. CLINICAL SIGNS AND LESIONS

Duck plague may appear in acute or chronic forms. The incubation period ranges from 2 to 7 days. It frequently occurs in intensive or semi-intensive duck farms throughout Vietnam.





Clinical signs:

Affected ducks often appear depressed, refuse feed, have ruffled feathers, watery greenish diarrhea sometimes mixed with blood, and nasal discharge.

Some birds show swollen eyelids, conjunctivitis, and photophobia.

Ducks may stand with drooping wings and a hunched posture; mortality can reach 90–100%.

Lesions:

- Hemorrhages on the mucosa of the digestive tract and cloaca.
- Necrosis and ulceration of the intestinal and proventricular mucosa.
- Hemorrhagic spots and ecchymoses on the liver and heart.
- Enlarged spleen, friable and dark.
- Hemorrhagic trachea and larynx.
- Ovarian follicles congested, hemorrhagic, and degenerated.
- Hemorrhagic membranes in the mouth and esophagus.
- Petechial hemorrhages under the skin and on the surface of the intestines.

C. DIAGNOSIS

Diagnosis is based on typical lesions observed during necropsy.

For confirmation, laboratory tests such as virus isolation, histopathology, and serological tests (including ELISA and PCR) should be performed. Samples of liver, spleen, and intestines are recommended for testing. **PCR provides accurate and rapid confirmation.**

D. PREVENTION

Effective prevention should follow four principles:

- Select healthy breeding stock.
- Maintain strict farm hygiene.
- Enhance flock immunity.
- Vaccinate against Duck Plague and related viral diseases.

D1. Vaccination:

- Use HANVET **DUCK PLAGUE VACCINE**
- Can be administered to ducks of all ages
- Revaccinate every 6 months

You may use Hanvet K.T.V® Antibody to protect ducklings from the first week of age at 0.5–1.0 ml/bird, and repeat after 10 days.

D2. Strengthening Immunity:

Use supportive agents such as vitamins, electrolytes, detoxifiers, and feed efficiency enhancers like: **Han-Goodway, Han-Lytevit C, Han-Mulzime.**

D3. Strengthening Immunity:

Disinfect regularly using **Han-Iodine 10%, Hankon WS, Hanmid**, 2–3 times per month throughout the entire farming area.

Eliminate vectors such as flies, mosquitoes, ants, and cockroaches using **Hantox-200, Han-Pec 50 EC** within duck-raising areas, 1–2 times per week.

E. TREATMENT

Step 1: Immediately inject **Hanvet K.T.V® Antibody,** intramuscularly or subcutaneously.

For Ducklings and Muscovy ducklings under 2 weeks old:

- First injection: 1–1.5 ml per bird.
- Second injection: Repeat after 2 days.

For Ducks and Muscovy ducks over 2 weeks old:

- First injection: 1.5–2 ml per bird.
- Second injection: Repeat after 2 days.

In outbreak situations, Hanvet Duck Plague Vaccine may be injected directly into affected flocks at a dosage 3–4 times higher than the normal recommended dose for emergency control.

Step 2: Give the Ducks and Muscovy ducks one or more of the following medications orally:

Liver and kidney detoxification with Han-Sobitol, **Hepanic-200** at 2 ml per liter of drinking water, or use **Han-Para C**.

Electrolyte and Glucose supplement: 5–10 g per liter of drinking water.

Vitamin supplementation: Han-Tophan, B-Compvit at 4 ml per liter of drinking water, or **Hanmimvit-Super**, **Han-Lytevit C**, **B-Complex** at 2–4 g per liter of water.

Antibiotic therapy: Hanmocla WSP, **Hamcoil-forte**, **Genta-Costrim** at 1–2 g per kg of feed, given continuously for 5–7 days.

Hygiene and disinfection: Disinfect housing and equipment with **Han-Iodine 10%**, **Hankon WS**, **Hanmid** regularly during the treatment period.

DUCK VIRAL HEPATITIS (DVH)

A. EPIDEMIOLOGY

Duck Viral Hepatitis (DVH) is an acute, highly contagious viral disease that occurs mainly in ducklings aged 1–6 weeks, especially those under 3 weeks old. The disease spreads rapidly and causes very high mortality, often 95–100% in affected flocks.

Duck Viral Hepatitis (DVH) is caused by Duck Hepatitis A Virus (DHAV), belonging to the genus Avihepatovirus, family Picornaviridae.

There are three serotypes: DHAV-1, DHAV-2, and DHAV-3, all capable of causing acute hepatitis in young ducklings.

Among them, Type 1 (DHAV-1) is the most common and pathogenic type worldwide, responsible for most outbreaks in Asia, including Vietnam.

B. CLINICAL SIGNS AND LESIONS

Type 1 infection: typically occurs in acute outbreaks among young ducklings, leading to sudden death within 1–2 hours after onset.

The disease progresses rapidly, and death usually occurs within 1–2 days.

Clinical signs:

Ducklings are depressed, tremble, lie on their sides, or spin in circles before death.

During the final stage, many birds show opisthotonus (arching of the head and neck backward), spasms, or paddling movements before death.

Lesions:

- Liver enlarged, friable, with multiple small hemorrhagic foci.
- Gall bladder distended.
- Petechial and ecchymotic hemorrhages on heart, spleen, and kidneys.
- Blood congestion in the brain and meninges.

C. DIAGNOSIS

Diagnosis can be based on the disease history, which typically involves sudden deaths among young ducklings with a high morbidity and mortality rate.

A characteristic posture at death is opisthotonus, in which the head bends backward and the legs extend straight behind the body as if paddling.

Virus isolation is commonly performed by inoculating liver samples from affected ducks into embryonated duck eggs or duck embryo liver cell cultures. Diagnosis can also be confirmed by PCR assays or immunofluorescence antibody techniques for detection of the viral genome and antigens.

D. PREVENTION

D1. Vaccination is the first choice: Vaccinate breeder ducks against Duck Viral Hepatitis before laying to ensure maternal antibody protection for ducklings. Use HANVET **DUCK HEPATITIS VACCINE**

- Ducklings from unvaccinated hens: vaccinate at 1–3 days of age.
- Ducklings from vaccinated hens: vaccinate at 7–10 days of age.
- Breeder ducks: revaccinate at 8 weeks of age and again 2 weeks before laying.

D2. Use of Antiserum (Passive Immunization):

In high-risk areas, use **Hanvet K.T.V® Antibody** for ducklings at 1 day of age, injecting 0.5 ml per bird to provide immediate passive protection.

Hanvet K.T.V® can protect ducklings for about 1 week, after which the **Duck Viral Hepatitis vaccine** should be administered to establish long-term immunity.

In addition, strengthen biosecurity and farm sanitation:

- Disinfect brooders and rearing areas with **Han-Iodine 10%**, **Hankon WS**, 2–3 times per week.
- Maintain proper temperature, provide clean feed and water, and improve duckling health and immunity using **Han-Lytevit C**, **Han-Tophan**, etc.
- To prevent secondary bacterial infections and protect the liver, use **Hamcoli-forte**, **Genta-Costrim**, **Hanmocla WSP**.
- Control rodents and insects (rats, ants, flies, mosquitoes, cockroaches) with **Hantox-200**, **Han-Pec 50 EC**, **Han-Lambda 2.5CS**.

E. TREATMENT

Use **Hanvet K.T.V® Antibody** for treatment; vaccination is not recommended during an active outbreak.

Step 1: Immediately inject Hanvet K.T.V® Antibody intramuscularly or subcutaneously.

For Ducks and Muscovy ducks under 2 weeks old:

- First dose: 1–1.5 ml per bird.
- Second dose: Repeat after 2 days at the same dosage.

For Ducks and Muscovy ducks over 2 weeks old:

- First dose: 1.5–2 ml per bird.
- Second dose: Repeat after 2 days at the same dosage.

Step 2: Give the affected flock one or more of the following supportive treatments orally:

Vitamin and hepatoprotective supplements: Hepanic-200, Han-Sobitol, Han-Lytevit C at 2–4 g per liter of water.

Electrolyte and Glucose supplement: 5–10 g per liter of drinking water.

Vitamin supplementation: Han-Tophan, B-Compvit at 2–4 ml per liter of drinking water.

Antibiotic therapy: Hanmocla WSP, Hamcoil-forte, Genta-Costrim at 1 g per kg of feed, given continuously for 5–7 days.

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DUCK PARVOVIRUS INFECTION (DERZSY'S DISEASE)

A. EPIDEMIOLOGY

Derzsy's disease, also known as short beak and dwarfism disease, affects Muscovy ducks, geese, and crossbred waterfowl. It is a highly contagious viral disease caused by Parvovirus, occurring mainly in ducklings aged 1–3 weeks, with a mortality rate ranging from 10–30% of the flock.

The virus is resistant to chloroform and can withstand heating at 56°C for up to 1 hour.

Certain breeds such as Khaki Campbell, Cherry Valley, and Peking ducks show relatively higher resistance to the disease.

B. CLINICAL SIGNS AND LESIONS

Derzsy's disease occurs in acute and chronic forms, with a disease course of 3–5 days.





Acute form:

Ducklings exhibit high fever (45–46°C), loss of appetite, nasal discharge, sneezing, watery diarrhea mixed with mucus, and dehydration. Feathers become rough, the beak turns pale, and birds often lie still or gather near heat sources. Secondary infections are common.

Chronic form:

Infected Muscovy ducks and geese become stunted, short-necked, and short-beaked, with swollen abdomen due to ascites. Affected birds have arched backs, unsteady gait, and slow growth. In severe cases, mortality can reach 100% within one week in young ducklings.

Lesions:

- Liver and spleen are enlarged and congested.
- Joints and tendons may contain serous or gelatinous fluid.
- Intestines show catarrhal inflammation with fibrin deposits.
- Lungs are congested, trachea filled with mucus.
- In chronic cases, necrosis and atrophy of the bursa and thymus are observed.

C. DIAGNOSIS

Diagnosis is based on the epidemiological history, clinical signs, and necropsy findings.

Characteristic findings include shortened beak and neck, growth retardation, and ascitic swelling in chronic cases.

Confirmation is achieved by virus isolation from liver or spleen using embryonated goose or duck eggs, or by laboratory tests such as VNT (Virus Neutralization Test), ELISA, IFAT, and PCR.

D. PREVENTION AND CONTROL

Currently, there is no specific vaccine available; therefore, using **Hanvet K.T.V® DERZSY'S Antibody** is considered the most effective measure for both prevention and treatment of Derzsy's disease in ducks Muscovy ducks.

Preventive dose: For ducklings or goslings aged 2–3 days: inject 0.5 ml per bird, repeat every 5–7 days.

Therapeutic dose: For ducklings or goslings aged 2–3 days: inject 0.5 ml per bird, repeat every 5–7 days.

- For ducklings under 2 weeks old: inject 1 ml per bird, repeat after 2 days.
- For ducks over 2 weeks old: inject 1–1.5 ml per bird, repeat after 2 days.

Combination therapy: For enhanced efficacy, 2 - 3 **Hanvet K.T.V® DERZSY'S 100 ml** can be combined with 1 Clafotax(1 g) to prevent and treat secondary bacterial infections that often accompany viral disease.

In addition, apply comprehensive biosecurity and sanitation measures:

- Keep housing clean and dry, regularly disinfect with **Han-Iodine 10%, Hankon WS, Hanlusep BGF...**
- Control insect vectors using **Hantox-200, Han-Lambda 2.5CS**.
- To reduce fever and lower temperature, use **Han-Para C.**
- To enhance resistance and improve recovery, supplement with **Han-Tophan, Hanminvit-Super, Han-Goodway, Han-Mulzime.**

TEMBUSU DISEASE – TMUV (REDUCED EGG PRODUCTION SYNDROME IN DUCKS)

A. EPIDEMIOLOGY

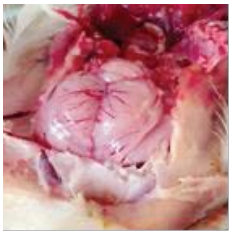
Tembusu disease is caused by the Tembusu virus, belonging to the Flaviviridae family.

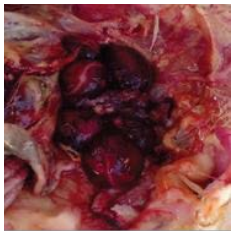
The virus was first identified in 1955 in mosquitoes in Malaysia, and was officially reported in Vietnam in 2019.

The disease occurs in ducks, geese, and Muscovy ducks, mostly in adult birds older than 3 weeks, which are highly susceptible to infection.

B. CLINICAL SIGNS AND LESIONS

The incubation period ranges from 3–5 days.




Clinical signs:

Ducks show signs of depression, anorexia, and reduced egg production as early manifestations.

Diarrhea with green or white watery feces is common.

Egg production drops 70–80% within a short period, and may remain low for 3–5 weeks.

Neurological symptoms such as tremors, incoordination, paralysis, twisting of the neck (opisthotonus), and circling movement may appear in severe cases.

Some ducks also exhibit leg weakness and difficulty walking.

Pathological lesions:

- Liver: enlarged, congested, with yellowish spots or necrosis.
- Spleen: swollen and friable.
- Ovaries: hemorrhagic, with ruptured and degenerated follicles.
- Intestines: hemorrhagic or catarrhal inflammation.
- Kidneys: pale and swollen.
- Brain and meninges: hyperemia and small hemorrhages.

C. DIAGNOSIS

Diagnosis is based on epidemiological information, clinical signs, and typical pathological lesions. Laboratory confirmation can be achieved by: **Virus isolation, PCR assay, Serological tests (ELISA or neutralization tests).**

Currently, routine hematological tests are not yet standardized for field diagnosis.

D. PREVENTION AND TREATMENT

Prevention:

Because the Tembusu virus can be transmitted by mosquitoes, mosquito control and elimination are essential. It is recommended to reduce mosquito density in the farm area by using **Han-Tephos 1% SG** diluted in water to spray ponds, ditches, or stagnant water at a dosage of 10 g per 100 liters of water. **Han-Cyctox 10 SC** can also be used to spray farm environments to eliminate adult mosquitoes and other insects at 100 ml per 10 liters of water.

To prevent the disease in ducks and geese, vaccination against Tembusu virus is the most effective measure. Currently, **HANVET TEMBUSU INACTIVATED VACCINE** is available. It is injected intramuscularly or subcutaneously at 0.5 ml per bird from 1 week of age.

- For commercial ducks: vaccinate once at 1 week of age and repeat after 14 days to ensure strong immunity.
- For breeder ducks: vaccinate once at 1 week of age and repeat after 14 days; revaccinate every 6 months to maintain protection.

In addition, implement good biosecurity and hygiene measures such as:

- Enhance resistance and health with supplements like **Hanegg-Plus, ADE-Tan, Elac-Grow, Han-Mulzime.**
- Strengthen hygiene and sanitation by disinfecting regularly with **Han-Iodine 10%, Hankon WS, Hanlusep BGF**.
- Manage waste and manure using **Han-Proway.**

Treatment:

There is no specific treatment for the disease.

Treatment is not recommended, especially for laying flocks, as the virus can cause long-term effects on egg production.

REOVIRUS DISEASES IN DUCK

A. EPIDEMIOLOGY

The disease is caused by reovirus, which affects poultry and waterfowl.

- The disease can occur year-round but is more common in the spring season, particularly during cool and humid weather.
- It usually appears in ducklings aged 7–35 days, especially 10–25 days old, as the virus is transmitted mainly through the digestive and respiratory tracts.
- The disease occurs in Muscovy ducks, broiler ducks, Peking ducks, Cherry Valley ducks, and other breeds. Mortality rate among ducklings ranges from 60–90%, while overall flock mortality is **50–80%.**
- Transmission can occur by direct contact (horizontal) or vertical transmission from infected breeders to eggs. Outbreaks are often associated with poor hygiene, high density, and sudden weather changes.

B. CLINICAL SIGNS AND LESIONS

Derzsy's disease occurs in acute and chronic forms, with a disease course of 3–5 days.



Typical clinical signs:

Infected ducks and Muscovy ducks appear very weak, reluctant to move, showing lethargy, trembling, drooping wings, and ruffled feathers. Feed intake decreases; ducks show loss of appetite, diarrhea, and wasting. Feces are yellow, gray, or white, sometimes mixed with mucus. The disease course usually lasts 2–14 days, and mortality often peaks 5–7 days after onset.

In severe cases, ducks are emaciated, dehydrated, and die from exhaustion.

Lesions observed at necropsy:

- Liver: enlarged, pale brown, brittle, with necrotic foci or grayish-white patches.
- Spleen: enlarged, soft, with mottled gray-white areas.
- Heart: enlarged with fibrin deposits, sometimes showing pericarditis or myocarditis.
- Kidneys: swollen and congested.
- Lungs and intestines: hemorrhagic and inflamed.
- Leg and breast muscles: may contain gelatinous fluid.
- Peritoneal cavity: may contain fibrinous exudate.

C. DIAGNOSIS

Diagnosis is based on clinical symptoms and necropsy findings, particularly lesions in the liver, spleen, and heart. It is necessary to differentiate MDRV from other viral or bacterial diseases such as Duck Viral Hepatitis, Pasteurellosis, Colibacillosis, or Duck Plague.

Laboratory confirmation can be made by virus isolation or PCR/rtPCR for accurate identification.

D. PREVENTION

When ducks or Muscovy ducks are infected with Reovirus, their immune systems become weakened, making them more susceptible to secondary infections such as viral hepatitis, septicemia, or E. coli infection.

Therefore, it is necessary to vaccinate against Reovirus early, ideally 1 day before or on the first day after hatching, and to provide continuous immune support using vitamins, probiotics, and enzymes to strengthen resistance. **Specifically:**

- Inject **Hanvet K.T.V® Antibody** for ducklings at 1 day of age, 0.5 ml per bird, subcutaneously or intramuscularly.
- Supplement **Han-Mulzime, Han-Tophan** throughout the disease period, and combine with **Hamcoli-forte** or **Gentadox WSP** mixed into feed to prevent secondary bacterial infections.
- Disinfect water and housing regularly with **Han-Iodine 10%, Hanmid, Hankon WS**.
- Spray the entire farm area 2–3 times per week to kill flies, mosquitoes, and other vectors using **Hantox-200, Han-Pec 50 EC.**

E. TREATMENT

There is currently no specific treatment for Reovirus infection; however, supportive therapy can significantly reduce mortality and accelerate recovery.

Immediately inject **Hanvet K.T.V® Antibody**:

- Ducklings under 2 weeks old: 1–1.5 ml per bird, repeat after 2 days.
- Ducks over 2 weeks old: 1.5–2 ml per bird, repeat after 2 days.

Administer liver detoxification and antipyretic agents: Han-Para C, Hepanic-200, Han-Sobitol at 4 ml per liter of drinking water or 100 g per 500–700 liters of water, given for 3–5 consecutive days.

Provide vitamins and electrolytes: Han-Tophan, Han-Lytevit C at 2–4 ml per liter of drinking water.

Control secondary bacterial infections: Mix **Gentadox WSP**, **Hanmolca, Hanflor 4%** into feed at 100 g per 500–700 kg feed for 3–5 days.

Disinfect the environment: Clean and disinfect barns using **Hanlusep BGF, Hankon WS**, or treat waste with **Han-Proway** and beneficial probiotics.

DUCK INFLUENZA

A. EPIDEMIOLOGY

Duck influenza is an infectious disease caused by Orthomyxovirus – influenza type A virus, affecting poultry and waterfowl (ducks, Muscovy ducks, geese, and swans), as well as wild birds and migratory birds, which serve as natural reservoirs and spread the virus.

In farming conditions, the disease often occurs sporadically but can become severe when associated with other pathogens.

The virus is highly contagious and can spread rapidly through direct contact, respiratory secretions, and contaminated water sources.

Although ducks may show milder clinical signs than chickens, the infection rate is high, and mortality can still occur, particularly in young or immunocompromised flocks.

B. CLINICAL SIGNS AND LESIONS

Infected ducks show fever, lethargy, reduced movement, and ruffled feathers.



They may have greenish or whitish diarrhea, sometimes mixed with mucus or blood.

Affected ducks may exhibit nervous signs such as circling, head tilting, loss of balance, or paralysis.

Subcutaneous hemorrhage may appear around the legs, abdomen, or under the skin without feather coverage.

Lesions observed at necropsy:

- Hemorrhages under the skin and on internal organs.
- Tracheal mucosa: congested and hemorrhagic.
- Larynx and lungs: congested, edematous, and bleeding.
- Intestinal mucosa: dark red, with petechial hemorrhages.

C. DIAGNOSIS

Diagnosis is based on clinical signs and necropsy findings, and must be differentiated from Duck Plague and Newcastle Disease. Laboratory confirmation is made by PCR testing on samples such as tracheal or cloacal swabs, collected early in the disease.

D. PREVENTION AND TREATMENT

Because the disease can infect both animals and humans, strict biosecurity measures must be implemented — from farm management, housing preparation, breeding stock, feed, and water hygiene to vaccination protocols, medication, sanitation, and disinfection — along with insect and vector control. **Specifically:**

- Vaccination: Administer three doses at 15 days old, 45 days old, and two weeks before laying (for breeder ducks); revaccinate every 6 months.
- Immune enhancement: Regularly supplement ducks with vitamins, probiotics, and enzymes such as Han-Tophan, **Hanmimvit-Super**, **ADE-Tan**, **Han-Mulzime, Elac-Grow** to strengthen resistance and improve productivity.
- Sanitation and disinfection: Clean and disinfect duck houses with **Han-Iodine 10%, Hankon WS, Hanlusep BGF, Hanmid**, or Iocid.
- Vector control: Eliminate flies, mosquitoes, ants, cockroaches, and other vectors using **Hantox-200, Han-Pec 50 EC, Hanlambda 2.5CS, Han-Resis Plus EW, Han-Fly, or Han-Tephos 1% SG.**
- Waste management: Treat manure and organic waste with **Han-Proway, EcoMic** to reduce contamination and prevent viral persistence in the environment.

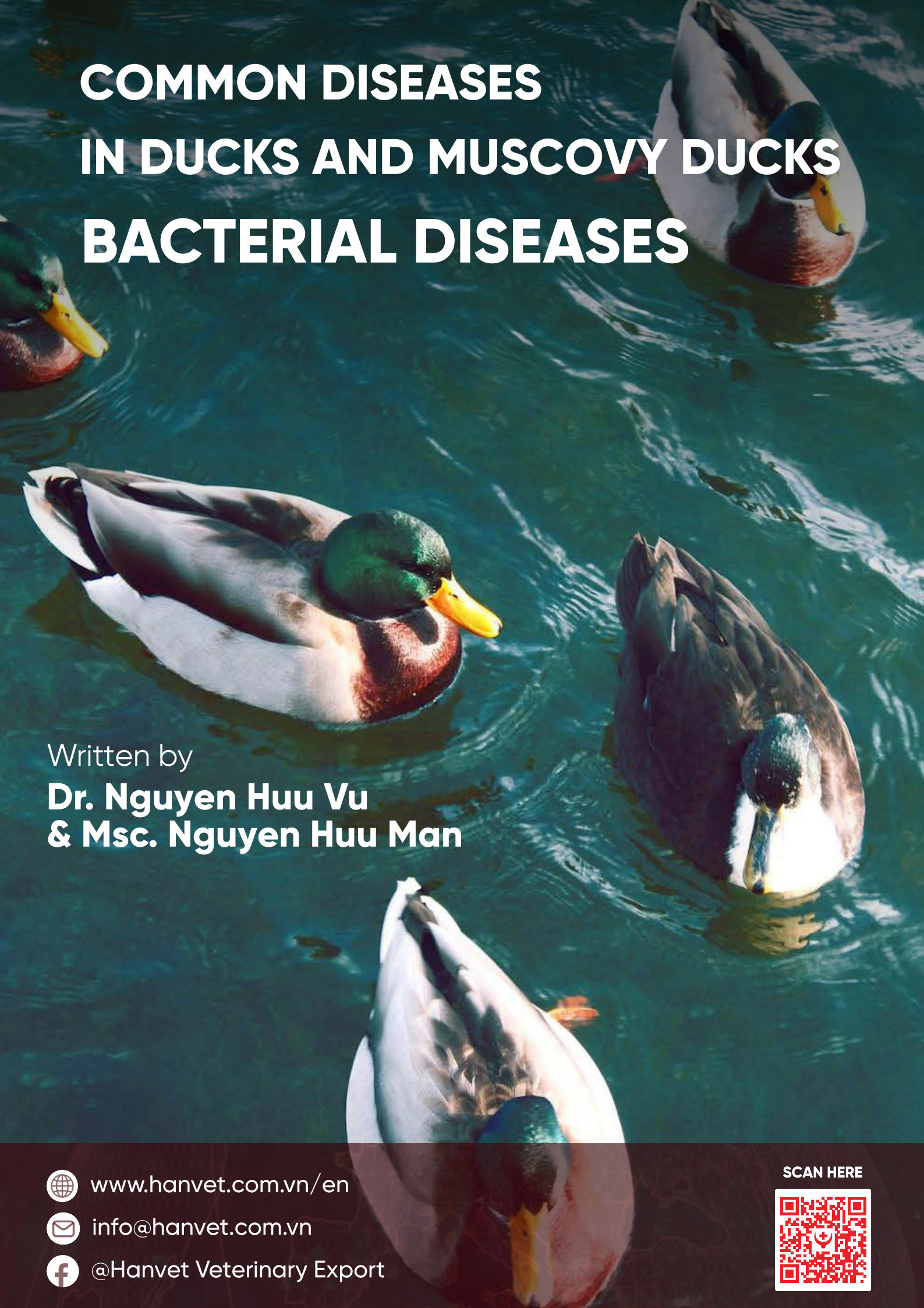
If an outbreak of avian influenza is detected, there is no effective treatment.

All infected or exposed birds must be culled immediately, and the area should be thoroughly disinfected.

Implement strict quarantine and movement restrictions to contain and eradicate the outbreak.

COMMON DISEASES IN DUCKS AND MUSCOVY DUCKS

BACTERIAL DISEASES



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FOWL CHOLERA (PASTEURELLOSIS)

A. EPIDEMIOLOGY

Fowl cholera is an infectious disease caused by Pasteurella multocida, a bacterium that affects various species of poultry and waterfowl.

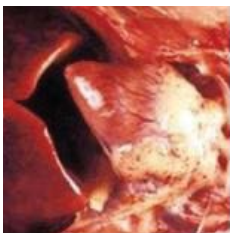
It occurs in ducks, geese, and other birds of different ages, but is most common in adult ducks.

The disease spreads rapidly and can cause mass mortality, resulting in severe economic losses in commercial duck farms.

Outbreaks may occur at any time of year, but are most frequent during the rainy or cold seasons when environmental conditions favor bacterial survival.

The disease spreads quickly through direct contact, contaminated feed and water, or infected carcasses, and is characterized by high morbidity and mortality.

B. CLINICAL SIGNS AND LESIONS


Peracute form: Ducks die suddenly without any obvious signs.

Acute form: Ducks show high fever (42–43°C), lethargy, loss of appetite, ruffled feathers, and watery discharge from mouth and nose. Some birds show cyanosis of comb and wattles, yellowish or greenish diarrhea, and difficulty breathing. Death usually occurs within 1–2 days after onset, with mortality rates up to 50–60%.

Chronic form: Surviving ducks may show swelling of the face, wattles, joints, and abscesses on legs or under the skin. They may also have weight loss, anemia, and reduced egg production.

Lesions:

- Acute cases: Enlarged, congested liver with multiple necrotic foci; hemorrhages in lungs, heart, and intestines; petechial hemorrhages on the serous membranes.
- Chronic cases: Localized abscesses in joints, subcutaneous tissues, or internal organs such as liver and lungs.

The spleen is usually enlarged, dark red, and friable.

C. DIAGNOSIS

Diagnosis is based on clinical symptoms and typical necropsy lesions. Definitive confirmation is obtained by bacterial culture and identification. Samples (blood, liver, spleen) are taken from freshly dead birds for laboratory analysis.

The organism can be confirmed by Gram staining (showing bipolar staining), and by biochemical tests for Pasteurella multocida identification.

D. PREVENTION

Implement strict biosecurity measures in duck farming.

- Keep duck houses dry, clean, and well-ventilated: cool in summer and warm in winter, minimizing stress and adverse environmental conditions.
- **Vaccination** is the most effective and reliable preventive measure, particularly in breeding or commercial farms with dense populations.

Currently, there are two types of Fowl Cholera vaccines available ***(Manufactured by Hanvet)***

HANVET INACTIVATED FOWL CHOLERA VACCINE

HANVET LIVE ATTENUATED FOWL CHOLERA VACCINE

Both vaccines are safe for healthy ducks over one month of age. In particular, the inactivated Fowl Cholera vaccine provides up to 100% protection, inducing an early immune response (within 5–7 days after vaccination) and maintaining over 80% immunity across species (ducks, geese, and chickens).

Vaccines can be administered subcutaneously or intramuscularly at a dose of 1 ml per bird.

Table: Vaccine Safety and Immunogenicity Test Results

	Number of ducks	Immunization dose (CFU/ml)	Number of surviving ducks after inoculation		Result
			Immunized group	Challenge group	
Safety test	10	1×10^9	10/10		Passed
	10	6×10^9	10/10		Passed
Immunization test	10	5.2×10^7		10/10	Passed
	10	2.5×10^7		08/10	Passed
Control	10	-		0/10	Passed

Note: Store the vaccine at 2–8°C, and do not use antibiotics one week before or after vaccination.

For newly introduced ducks, maintain proper brooding temperature, provide nutrient-rich feed, and add broad-spectrum antibiotics such as **Hamcoli-forte, Genta-Costrim, HanFlor 4%** at 1 g/kg feed for 3–5 days to prevent early Pasteurella infection.

Supplement essential vitamins such as **B-Comvit, Hanminvit-Super, Han-Tophan** (2 ml/liter of water). Use probiotics and immune enhancers like **Han-Goodway, Han-Mulzime, Superzyme** (1 kg/500–1000 kg feed) to improve digestion and resistance.

Regularly disinfect housing and equipment using **Han-Iodine 10%, Hanlusep BGF, Hanmid**. Control flies and mosquitoes with **Hantox-200, Han-Pec 50 EC, Hanlambda 2.5CS, Han-Cyctox.**

E. TREATMENT

- Specific treatment: Use **Han-Para C** (100 g/500–700 liters of drinking water) or inject **Hananglin-C** (1 ml/10 kg body weight).
- For antibiotic therapy: use **Hanmogen**, **LinSpec 5/10**, **Hangen-Tylo**, **Linco-gen** (1 ml/5–7 kg body weight) or mix into feed **Gentadox WSP**, **LinSpec 110**, **Hanmocla WSP** at 1 g/kg feed.
- Add vitamin and tonic supplements: **Han-Tophan**, **Multivit Forte**, **B-Comvit**, **Hanminvit-Super** at 2 ml/liter of water.
- Provide electrolyte and liver detoxification support: **Han-Lytevit C**, **Han-Sobitol**, Glucose for 3–5 consecutive days.
- Maintain strict disinfection and vector control throughout the treatment period.

RIEMERELLOSIS (Septicemia in Ducks Caused by Riemerella Anatipestifer – RA)

A. EPIDEMIOLOGY

Riemerellosis is an infectious septicemic disease caused by Riemerella anatipestifer (RA). There are 21 known serotypes, and cross-protection among serotypes is poor, meaning that vaccination with one strain does not provide broad protection against others.

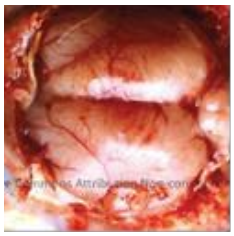
The disease mainly affects ducks, geese, turkeys, and occasionally chickens. Young ducks between 1–8 weeks of age are most susceptible. Outbreaks usually occur in warm and humid conditions, with disease duration of 2–5 days. The RA bacterium enters the body through the respiratory tract or skin lesions, causing septicemia, meningitis, pericarditis, perihepatitis, and airsacculitis.

Mortality ranges from 10–75%, depending on the environment and farm management.

B. CLINICAL SIGNS AND LESIONS

The incubation period ranges from 3–5 days.




Clinical signs:

At the onset, ducks show greenish diarrhea, depression, ruffled feathers, loss of appetite, and nasal discharge.

As the disease progresses, affected ducks exhibit ataxia (loss of coordination), torticollis (twisting of the neck), and paralysis.

Mortality increases rapidly in acute cases.

Lesions:

- Liver: enlarged, congested, with yellowish spots or necrosis.
- Spleen: swollen and friable.
- Ovaries: hemorrhagic, with ruptured and degenerated follicles.
- Intestines: hemorrhagic or catarrhal inflammation.
- Kidneys: pale and swollen.
- Brain and meninges: hyperemia and small hemorrhages.

C. DIAGNOSIS

Diagnosis is based on clinical signs and gross lesions, and should be differentiated from other bacterial diseases such as Fowl Cholera, E. coli septicemia, and viral diseases such as Duck Plague, Duck Hepatitis, and Derzsy's disease.

Confirmation is achieved by bacterial isolation and identification using API tests or PCR, and by ELISA serotyping to detect specific antibodies.

D. PREVENTION AND TREATMENT

Prevention:

Follow strict biosecurity measures in duck production. Ensure clean housing, good ventilation, and high hygiene standards.

Vaccinate ducks with **HANVET RA VACCINE** which provides reliable protection against common RA serotypes.

Vaccination schedule:

- Ducklings 1 week old: inject 0.2 ml per bird.
- Adult ducks: inject 0.3 ml per bird and revaccinate every 6 months at 0.5 ml per bird.

Use broad-spectrum antibiotics for prevention, especially **Hamcoli-forte, Genta-Costrim, HanFlor 4%** at 1 g/kg feed.

Supplement vitamins and probiotics such as **B-Comvit, Hanminvit-Super, Han-Tophan** (2 ml/liter of water), and digestive enhancers like **Han-Goodway, Han-Mulzime, Superzyme** (1 kg/500–1000 kg feed).

Disinfect housing regularly using **Han-Iodine 10%, Hanlusep BGF, Hanmid.**

Control vectors with **Hantox-200, Han-Pec 50 EC, Hanlambda 2.5CS, Han-Cyctox 10 SC.**

E. TREATMENT

Quickly reduce fever using **Han-Para C** at 100 g/500–700 liters of drinking water, or inject **Hanalgin-C** at 1 ml/10 kg body weight.

Use one of the following antibiotics for treatment: **Hanmogen, Hanceft** at 1 ml/10 kg body weight, or mix in feed **Han-Flor oran 20%**, **Han-Cillin 50**, **Hanmocla WSP** at 1 g/kg feed.

Supplement with vitamins and tonics: Vitamin C, **Han-Tophan, Multivit-Forte, B-Comvit, Hanminvit-Super** at 2 ml/liter of drinking water.

Liver tonics and electrolytes: **Han-Lytevit C, Han-Sobitol,** Glucose for 3–5 consecutive days.

Environmental sanitation and pest control: disinfect and eliminate vectors every 1–2 weeks.

COLISEPTICEMIA IN DUCKS (E. COLI INFECTION)

A. EPIDEMIOLOGY

The disease is caused by Escherichia coli (E. coli), with multiple pathogenic serotypes (mainly O1, O2, O78, and others). E. coli infection in ducks is typically a secondary bacterial infection following viral or environmental stress. It occurs in ducks of all ages, but is most common in ducklings aged 3–30 days, with mortality rates of up to 60%.

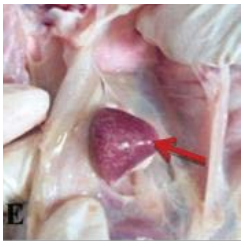
Outbreaks are often associated with poor ventilation, high humidity, and unsanitary litter, which favor bacterial invasion and spread.

B. CLINICAL SIGNS AND LESIONS

The disease can occur in acute or chronic forms. Clinical signs include depression, ruffled feathers, loss of appetite, diarrhea, and nasal discharge. In acute cases, ducks show fever, ruffled feathers, watery diarrhea, and may die within 3–5 days after infection.

Typical symptoms: ataxia, twisting of the neck, leg paralysis, greenish-white diarrhea, reduced egg production, soft-shelled or deformed eggs.





Post-mortem lesions:

- Fibrinous pericarditis, perihepatitis, and air sacculitis.
- Congested liver with petechial hemorrhages.
- Swollen spleen and cloudy air sacs with fibrin deposits.
- Oviduct and ovary inflammation with ruptured follicles.
- Intestines filled with yellowish or whitish exudate.

C. DIAGNOSIS

Diagnosis is based on clinical signs and necropsy lesions, and should be differentiated from Riemerella anatipestifer and Pasteurella multocida infections.

Confirmation is achieved by bacterial isolation (liver, spleen, heart), Gram staining, and PCR identification.

Serotyping and antibody detection can be done using ELISA.

D. PREVENTION AND TREATMENT

Prevention:

Use monovalent Avicolivac vaccine or the **RA-EC COMBINED VACCINE.**

- 1st injection: Inject subcutaneously at a dose of 0.2–0.3 ml/bird at 1 week of age.
- 2nd injection: After 2 weeks, inject 0.3 ml/bird.
- 3rd injection: For breeder ducks, vaccinate 2 weeks before laying at 0.5 ml/bird.

Use broad-spectrum antibiotics for prevention during rearing such as **Hamcoli-forte, Genta-Costrim, HanFlor 4%.**

Maintain strict biosecurity, keep housing clean, disinfect regularly, and control insects and rodents that spread disease.

E. TREATMENT

Depending on disease severity, choose appropriate antibiotics for injection or oral administration to ensure effective treatment.

- **Hamcoli-S, Genorcoli, Hampiseptol, Hanmogen:** Inject 1 ml per 8–10 kg body weight daily, for 3–5 days.
- **Colistin-1200, Hamcoli-forte, Gentadox WSP, Han-Cillin 50:** Use 100 g per 500–700 liters of drinking water, continuously for 3–5 days.

Enhance resistance and liver function with **Han-Lytevit C, Han-Sobitol, Han-Tophan, Han-Mulzime, Han-Goodway,** combined with glucose and electrolytes.

Clean and disinfect duck houses regularly, and spray **Han-Iodine 10%, Hankon WS,** or **Hanlusep BGF** at 1 liter per 100 liters of water.

For vector control, spray **Hantox-200** at 100 ml per 8–10 liters of water, 1–2 times per week around the farm.

After treatment, if environmental conditions are poor, E. coli can quickly develop antibiotic resistance, so continuous monitoring and hygiene control are essential.

CHRONIC RESPIRATORY DISEASE IN DUCKS

A. EPIDEMIOLOGY

It rarely causes high mortality but can lead to prolonged outbreaks if not treated promptly. The disease is mainly associated with poor housing hygiene and high stocking density, and is caused by bacteria such as *Mycoplasma, Staphylococcus,* and *Streptococcus*.

The incubation period is 5–7 days.

B. CLINICAL SIGNS AND LESIONS

Infected ducks show lethargy, reduced appetite, nasal discharge, and labored breathing. Thick mucus accumulates in the trachea, producing wheezing and rattling sounds. In severe or secondary infections, ducks may develop fever, mouth breathing, cyanosis of the beak and feet, convulsions, and death due to hypoxia.

Post-mortem lesions:

- Tracheitis with catarrhal exudate.
- Lung congestion and air sac thickening with mucus.
- Pericarditis and perihepatitis in chronic cases.

C. DIAGNOSIS

Diagnosis is based on clinical signs, post-mortem lesions, and detection of Mycoplasma from nasal or tracheal swabs. Confirmation can be made by bacterial isolation, ELISA, or PCR.

It should be differentiated from avian influenza, Newcastle disease, infectious laryngotracheitis, and fungal respiratory infections.

D. PREVENTION

Maintain good hygiene and ventilation; avoid overcrowding and high humidity.

Vaccinate with **Mycoplasma gallisepticum vaccine** for ducklings at 4 weeks of age for effective immunity.

Regularly disinfect housing before and after each production cycle using **Han-Iodine 10%** (1 L/100 L water); spray directly or use **Hankon WS, Hanlusep BGF, Hanmid, iocid** for thorough sanitation.

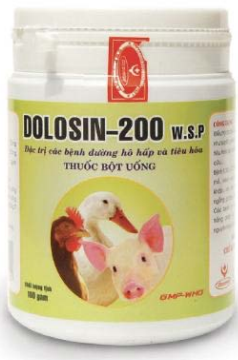
Strengthen resistance with vitamin and enzyme supplements: **Han-Tophan, Hanminvit-Super, B-Comvit, Han-Goodway, Han-Mulzime, ADE-Tan.**

Use preventive feed additives containing **Oxytetracycline 50%, Dolosin-200, Linspec 110**, or **Gentadox.**

E. TREATMENT

When clinical signs appear, follow these treatment steps:

- **Reduce fever and clear mucus** with **Han-Para C** (100 g/500–700 L drinking water) and **Han-Broxin** (0.5 g/L water).
- **Antibiotic therapy:** Inject Han-Tuxin (1 ml/20 kg body weight), Tiamulin 10%, Hansuvil 10, Linspec 5/10 (1 ml/10 kg body weight) or combine with Dolosin 200, Tyolvit C, Oxytetracyclin 50%.
- **Enhance immunity and support liver detoxification** using **Han-Tophan, B-Comvit, Han-Sobitol, Hepanic-200** at 2–4 ml/liter of drinking water, combined with Glucose 5–10 g/liter of water. For **faster recovery**, supplement with probiotics and enzymes such as **Han-Goodway, Han-Mulzime.**
- Regularly clean and disinfect duck houses using **Han-Iodine 10%, Hankon, Hanlusep BGF, Hanmid.**
- Spray **Hantox-200, Han-Resit, Han-Pec 50 EC, Hanlambda 2.5SC** to **eliminate insect vectors and control disease transmission.**



LEUCOCYTOZOONOSIS IN DUCKS

A. EPIDEMIOLOGY

This disease is caused by protozoan blood parasites of the genus Leucocytozoon spp, which infect chickens, ducks, geese, and turkeys. To date, 67 species of Leucocytozoon have been identified worldwide. The disease can occur in birds of all ages, especially during the warm and humid seasons.

Each infected bird can carry one or more Leucocytozoon species. The disease is transmitted by insect vectors such as blackflies, mosquitoes, and biting midges, which are more active in warm, rainy climates.

B. CLINICAL SIGNS AND LESIONS

Two main forms are observed: acute and chronic.

Acute form: Ducks show lethargy, loss of appetite, high fever, and cyanosis of the comb and wattles.

They develop greenish diarrhea, anemia, and weight loss, leading to death. Infected ducks may show paralysis and die from respiratory failure.

Chronic form: Ducks appear emaciated, pale, and weak.

They may recover but remain carriers of the parasite, continuing to spread the disease through insect vectors.

Lesions:

- Liver and spleen enlargement, with dark red or brown color.
- Hemorrhages in heart, kidneys, and lungs.
- Fatty degeneration of the liver.
- Ovary congestion and hemorrhages in reproductive organs.

C. DIAGNOSIS

Diagnosis is based on clinical signs and blood smears. In laboratory testing, blood smears stained with Giemsa can detect the parasite. Diagnosis is confirmed by PCR for *Leucocytozoon spp*. Differential diagnosis should exclude avian malaria *(Plasmodium gallinaceum)* and other blood parasites.

D. PREVENTION

Implement three key control measures:

D1. Environmental sanitation:

- Clean and disinfect duck houses regularly; remove standing water and weeds to prevent vector breeding.
- Use **Hantox-200, Han-Pec 50 EC, Han-Cyctox 10 SC** to eliminate mosquitoes, flies, and midges. Apply **Han-Tephos 1% SG** in ponds or canals to kill larvae. This is a critical step to prevent Leucocytozoon transmission.
- Disinfect the farm with **Han-Iodine 10%, Hankon WS, Hanlusep BGF** regularly.

D2. Enhance resistance and immunity:

- Supplement feed and water with **Han-Tophan, Han-Goodway, Han-Lytevit C** to improve resistance and recovery.

D3. Preventive medication:

- Regularly administer specific anti-blood parasite drugs to prevent infection: **Han-Metoxin:** 1 g per 1 liter of water per 5 kg body weight or **Hancoc:** 1 ml per 1 liter of drinking water per 5 kg body weight, **administered continuously for 5 days.**

E. TREATMENT

To effectively treat blood parasite disease *(Leucocytozoonosis)* in ducks and chickens, it is essential to detect the disease early and apply the following comprehensive measures:

Rapidly reduce fever in ducks using Han-Para C at a dose of 100 g/500 kg body weight. Administer Han-Metoxin (sulfamonomethoxin) at 2 g per 1 liter of water per 5 kg body weight, continuously for 5–7 days.

- Combine with supportive products to enhance immunity and detoxify the liver and kidneys, such as: **Han-Lytevit C, Han-Sobitol, Han-Tophan, Han-Goodway, Han-Mulzime,** mixed into drinking water or feed continuously for 5–7 days.
- Reinforce hygiene and disinfection measures in poultry houses and eliminate disease vectors by regularly using: **Han-Iodine 10%, Hankon WS, Han-Tephos 1%, Hantox-200, Han-Cyctox.**

ASPERGILLOSIS IN DUCKS

A. EPIDEMIOLOGY

Aspergillosis is a common fungal disease in waterfowl, caused mainly by *Aspergillus fumigatus, Aspergillus flavus,* or *Mucor spp*. These fungi exist widely in the environment with high humidity and poor sanitation in poultry houses, bedding, and feed.

The disease occurs in ducks of all ages, especially in young ducklings from 1–2 weeks old. It causes significant losses due to acute infection in young birds and chronic infection in adult ducks.

B. CLINICAL SIGNS AND LESIONS

Two main forms are observed: acute and chronic.

The main clinical sign of aspergillosis in ducks and geese is respiratory distress: gasping, open-mouth breathing, and wheezing.

The affected birds appear depressed, move slowly, eat less, stretch their necks, and often die after 3–5 days.

In severe cases, death can occur suddenly without clear symptoms.

On necropsy, nodular lesions with white or yellow mold growths are found in the lungs, air sacs, and occasionally in the liver or intestines.

C. DIAGNOSIS

Diagnosis is based on clinical signs and gross lesions.

The fungus can be observed microscopically in tissue samples. Fungal colonies can be cultured on Sabouraud dextrose agar and stained with Periodic Acid-Schiff (PAS) reagent for confirmation.

D. PREVENTION

Aspergillosis is strongly related to environmental conditions. Therefore, hygiene and sanitation must be strictly maintained.

Regularly clean and disinfect poultry houses and equipment using **Han-Iodine 10%** at 2–3 times per month.

Feed must be fresh, dry, and mold-free. Collect and dispose of leftover feed properly. Drinking water and feeding systems should be disinfected regularly.

E. TREATMENT

Remove birds showing severe clinical symptoms, as treatment is often ineffective.

- Use $CuSO_4$ (Copper sulfate) in drinking water at a 0.05% concentration (1 g per 2 liters of water) for prevention and fungal control.
- Mix antifungal agents such as Mycostatin or Nystatin into feed at 0.2%, continuously for 5–7 days.
- Enhance the ducks' immunity using supplements such as: **Han-Tophan, B-Comvit, Hanminvit-Super,** Vitamin C, and probiotics like **Han-Goodway, Han-Mulzime**.
- Disinfect poultry houses using **Han-Iodine 10%, Hanlusep BGF, Hanmid, HanKon**, etc.

CONCLUSION

This document has been compiled to provide farmers, veterinarians, and animal health technicians with practical knowledge for the recognition, prevention, and treatment of common diseases in ducks and geese.
Each disease section is organized following a scientific structure: cause – symptoms – diagnosis – prevention and treatment, accompanied by specific treatment recommendations using HANVET veterinary products, making it easy to apply in field conditions.

As Vietnam's livestock industry moves toward modernization, the application of biosecurity principles, preventive health management, and responsible veterinary drug use are key factors in improving productivity, minimizing disease outbreaks, and achieving sustainable animal production.

HANVET – Pharmaceutical and Veterinary Material Joint Stock Company sincerely thanks our valued customers, veterinarians, and partners both domestically and internationally for their continued trust and cooperation.

We remain committed to ongoing research, innovation, and production of high-quality veterinary medicines meeting GMP-WHO standards, contributing to animal health and the sustainable growth of Vietnam's livestock sector.

On behalf of the author group

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