



Vaccination of Small Poultry Flocks

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WHY VACCINATE?

- Vaccination is an effective means to **prevent** and/or **reduce** the adverse effects of specific diseases in poultry.
- Poultry:
 - chicken, turkey, duck, goose, quail, pheasant, pigeon, guinea fowl, pea fowl, ostrich, emu and rhea.

Vaccinate against who?

- Disease-causing organisms can be classified, smallest to largest, as:
 - Viruses
 - Mycoplasma
 - Bacteria
 - Fungi
 - Protozoa
 - Parasites



To Vaccinate or not to Vaccinate

- **Vaccination should be considered if** the flock owner has experienced one or more of the following:
 1. Takes birds to **poultry shows**
 2. **Buys birds from hatcheries, bird auctions, or other sources** and adds them to an existing flock
 3. Has **had disease problems** in the past



Vaccines

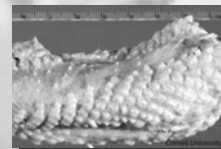
- **Live-virus vaccines** reproduce in the host to increase their numbers.
- **Killed-virus** product is dependent upon the number of antigenic units (e.g., virus particles) present in the vaccine dose to stimulate antibody production.
 - Most poultry vaccines are the live-virus type.
- **Bacterins**- bacterial vaccines are live or inactivated preparations of bacteria.





Marek's Disease Vaccine

Clinical signs:

- Type of avian cancer.
- Tumors in nerves cause lameness and paralysis. Tumors can occur in the eyes and cause irregularly shaped pupils and blindness. Tumors of the liver, kidney, spleen, gonads, pancreas, proventriculus, lungs, muscles, and skin
- Can cause incoordination, unthriftiness, paleness, weak labored breathing, and enlarged feather follicles.
- Terminal stages: the birds are emaciated with pale, scaly combs and greenish diarrhea

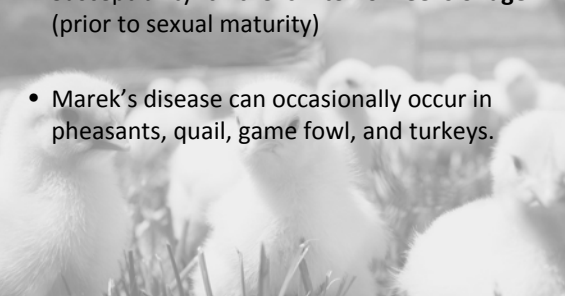


Marek's Disease Vaccine

- Usually administered to chickens at the hatchery on the day of hatch. It is given **subcutaneously** (under the skin) at the back of the neck. It is best to order chicks already vaccinated at the hatchery.
 - It only prevents the appearance of Marek's disease tumors and paralysis.
 - Does not prevent the birds from becoming infected with and shedding the Marek's virus.**

Marek's Disease Vaccine






- Susceptibility: chickens **2 to 16 weeks of age** (prior to sexual maturity)
- Marek's disease can occasionally occur in pheasants, quail, game fowl, and turkeys.

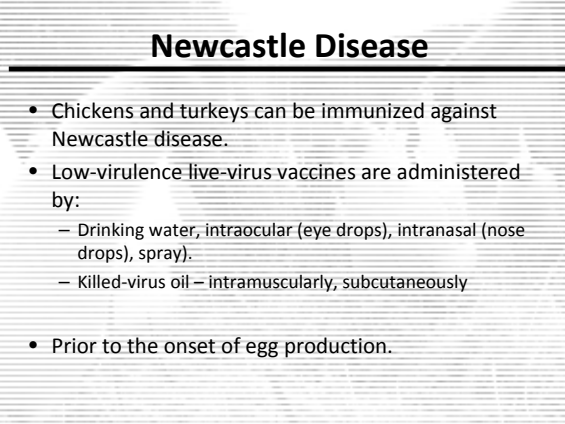
Newcastle Disease

Clinical signs:

- Three forms of Newcastle disease -- mildly pathogenic (lentogenic), moderately pathogenic (mesogenic) and highly pathogenic (velogenic).
- Characterized by a sudden onset of
 - Hoarse chirps** (in chicks)
 - Watery discharge from nostrils**
 - Labored breathing (gasping)**
 - Facial swelling**
 - Paralysis**
 - Trembling**
 - Twisting of the neck** (sign of central nervous system involvement)
- Mortality ranges from 10 to 80 percent** depending on the pathogenicity. In adult laying birds, symptoms can include decreased feed and water consumption and a dramatic drop in egg production.

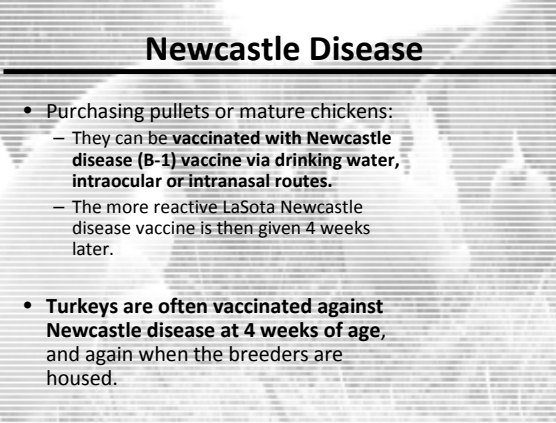




Newcastle Disease



- Chickens and turkeys can be immunized against Newcastle disease.
- Low-virulence live-virus vaccines are administered by:
 - Drinking water, intraocular (eye drops), intranasal (nose drops), spray).
 - Killed-virus oil – intramuscularly, subcutaneously
- Prior to the onset of egg production.

Newcastle Disease





- Purchasing pullets or mature chickens:
 - They can be **vaccinated with Newcastle disease (B-1) vaccine via drinking water, intraocular or intranasal routes.**
 - The more reactive LaSota Newcastle disease vaccine is then given 4 weeks later.
- Turkeys are often vaccinated against Newcastle disease at 4 weeks of age, and again when the breeders are housed.**

Infectious Bronchitis

Clinical signs:

- Feed and water consumption declines
- Chirping
- Watery discharge from the eyes and nostrils
- Labored breathing
- Gasping in young chickens
- Breathing noises
- Egg production drops dramatically
- Eggshells become rough and the egg white becomes watery

Infectious Bronchitis

- This is primarily a **respiratory disease** of chickens. Modified live-virus vaccines (usually containing the Massachusetts serotype) are administered in young chickens.
- Vaccines are effective only if they contain the right serotype of virus for a given area.

Do not vaccinate during an outbreak.

- Infectious bronchitis is often **combined with Newcastle** vaccine in the same vial and **given at the hatchery** or at **10-35 days of age**.
- **Killed-virus vaccines** (oil emulsion base) are also available.
 - Administered by injection (subQ or IM) to breeders from **14-18 weeks of age**.

Laryngotracheitis

Clinical signs

- Watery eyes
- Birds remain quiet – difficulty breathing
- Coughing, sneezing
- Shaking of the head - dislodge exudate plugs in the windpipe
- Birds extend their head and neck – facilitate breathing
- Wheezing and gurgling sound



Laryngotracheitis

- Affects both chickens and pheasants.
- **Vaccination** is not as successful as for other diseases
 - An **excellent preventive measure** for use in outbreaks and in epidemic areas.
- State approval is required prior to vaccination.
- **Do not vaccinate unless you have a problem** on your farm or in your area.
- **All chickens on the premises must be vaccinated**, including any new birds that are added later. Yearly boosters are advised.
- Administered by the eye- or nose-drop method.
- Birds should be **at least 4 weeks old**.

Foul Pox

Clinical Signs

- **Dry form**
 - Raised, wart-like lesions on unfeathered areas
 - The lesions heal in about 2 weeks.
 - If the scab is removed before healing is complete, the surface beneath is raw and bleeding.
 - **Unthriftness and retarded growth**
 - Laying hens: decline in egg production
 - **Wet form**
 - Canker-like lesions in the mouth, pharynx, larynx, and trachea.
 - Respiratory distress – upper air passage obstruction.
- Chickens may be affected with either or both forms of fowl pox at one time.



Foul Pox

- Six closely related strains of pox virus:
 - Fowl pox, pigeon pox, quail pox, canary pox, psittacine pox, and ratite pox.
- Pox **can be prevented in chickens, turkeys and pigeons by vaccination**, but there is no effective commercial vaccine against canary pox.
- Chickens and pigeons are usually **vaccinated by the wing web stick method**.
 - An applicator with two slotted needles dipped in vaccine and thrust through the wing web.
- **Turkeys** are not generally vaccinated by the wing web route.
 - Vaccinated by a **thigh-stick method**.



Foul Pox

- All domestic chicks and poults can be **vaccinated at 1 day of age**, pullets at 10 to 12 weeks, and turkeys at 8 to 14 weeks or when moved to range.
- The virus is spread from bird to bird through the bites of **blood-sucking insects** or through wounds and scratches by the birds when fighting.
- If there is a **heavy mosquito infestation** in an area, small flock owners may **consider vaccinating** with fowl pox vaccine.

Fowl Cholera

Clinical signs

- Usually strikes birds older than 6 weeks
- Dead birds (first sign)
- Fever
- Reduced feed consumption
- Mucoïd discharge from the mouth
- Ruffled feathers
- Diarrhea
- Labored breathing
- Weight loss
- Lameness – from joint infections
- Rattling noises – exudates in air passage
- Abscessed wattles
- Swollen joints and foot pads
- Turkeys may have twisted necks



Fowl Cholera

- Affects most birds including domestic fowl (primarily chickens and turkeys), game birds (especially pheasants), ducks, cage birds, wild birds.
- Two types of fowl cholera vaccines –
 - live attenuated
 - inactivated bacterins
- **Oral vaccine** – live attenuated administered in the drinking water.
- **Oil-emulsion bacterins** – series of two injections given at 4 week intervals.
- Do not vaccinate unless you have had a problem on your area.

Avian Encephalomyelitis

Clinical signs

- Signs commonly appear during the first week of life
- Dull expression of the eyes
- Progressive in-coordination
- Sitting on hocks
- Tremors of the head and neck
- Paralysis or prostration
- Inactivity
- Walking on their hocks
- Feed and water consumption decreases
- Transitory drop (5-20 percent) in egg production
- Chickens which survive may develop cataracts later in life



Avian Encephalomyelitis

- Avian encephalomyelitis (AE) is a viral infection of poultry, primarily chickens, turkeys, pheasants, and coturnix quail.
- **Lifetime immunity is acquired through vaccination or recovery** from a natural outbreak.
- Breeder chickens are **vaccinated at 10-16 weeks of age**. The vaccine is administered in the drinking water.
 - Pheasants: 5-10 weeks
 - Bobwhite quail: 6-10 weeks
- Avian encephalomyelitis should not be confused with St. Louis encephalitis.



TIPS FOR SUCCESSFUL VACCINATION

- Vaccination of poultry younger than 10 days of age cannot be expected to produce uniform or lasting immunity, even in the absence of parental immunity.
 - Except for Marek's disease (given on the day of hatch).
- Rotate vaccine stock. An outdated product may have deteriorated.
- Each vaccine is designed for a specific route of administration.
- Use only the recommended route – see **LABEL**
- Do not vaccinate sick birds (except in outbreaks of laryngotracheitis or fowl pox).

TIPS FOR SUCCESSFUL VACCINATION

- Protect vaccines from heat and direct sunlight.
- Most vaccines are living, disease-producing agents. Handle them with care.
- When using the drinking-water method of vaccination, **be sure the water is free of sanitizers and chlorine**.
- Livevirus vaccines are readily destroyed by these chemicals.
- After vaccinating, burn or disinfect all opened containers to prevent accidental spread to other poultry.



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