Common Poultry Diseases and Their Prevention

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Outline

• Definition of “disease”
• How diseases occur: basic principles
• Agent factors
• Host factors
• Management and environmental factors
• Signs of disease
• Common poultry diseases
• Final thoughts
What is *disease*?

- Any condition that results in deviation from normal function
How do diseases occur?

Diseases occur due to the interaction between 3 main factors:

- Agent
- Host
- Environment

NOTE: Not all poultry health and production problems are caused by infectious agents. LOOK AT MANAGEMENT FACTORS FIRST BEFORE CONSIDERING INFECTIOUS DISEASE
Agent Factors

- **Infectious Agents**
  - Bacteria
  - Viruses
  - Parasites
  - Fungi

- **Non-infectious agents**
  - Chemical
  - Physical
  - Lack or excess of certain vitamins and minerals
  - Toxins

http://health.utah.gov
Host Factors

• Breed
• Age
• Sex
• Immune status
Management and Environmental Factors

- Feed quality
- Lighting program
- Air quality and ventilation
- Water quality
- Space (floor or cage, feeder, drinker)
- Sanitation

- Weather
- Season
- Geographic location
General Signs of Disease

- Poor appetite
- Huddling
- Depression
- Runting/stunting; poor uniformity
- Ruffled feathers
- Coughing, sneezing, oculo-nasal discharge, difficult breathing
- Bloody or wet litter
- Increased mortality
Specific Signs of Disease

• **Respiratory**
  (gasping, coughing, snicking, swollen eyes, nasal discharge)

• **Possible Diseases/Conditions:**
  – Avian Influenza
  – Newcastle Disease
  – Infectious Laryngotracheitis
  – Infectious Bronchitis
  – Mycoplasmosis
  – Colibacillosis
  – Fowl Cholera
  – Ammonia
Specific Signs of Disease

• **Nervous**
  (trembling, paralysis, recumbency, circling)

• **Possible Diseases/Conditions:**
  – Marek’s Disease
  – Newcastle Disease
  – Fowl Cholera
  – Encephalomyelitis
  – Encephalomalacia (Vit. E/selenium deficiency)
  – Aspergillosis
  – Botulism
  – Bacterial encephalitis
Specific Signs of Disease

- **Locomotor**
  (crooked toes, swollen hocks, hyper-extended or rubbery legs)

- **Possible Diseases/Conditions:**
  - Rickets (Ca/P/Vit. D3 deficiency or imbalance)
  - Riboflavin deficiency
  - Biotin deficiency
  - Synovitis
  - Injury
Specific Signs of Disease

- **External Signs**
  (skin/eye/leg/foot lesions)

- **Possible Disease/Conditions:**
  - Lice
  - Mites
  - Biotin deficiency
  - Pantothenic acid deficiency
  - Riboflavin deficiency
  - Gangrenous dermatitis
    (*Clostridium sp; Staph. aureus*)
Specific Signs of Disease

• Digestive
  (bloody or watery feces)

• Possible Disease/Conditions:
  – Coccidiosis
  – Necrotic enteritis
  – Coronaviral enteritis
  – Infectious Bursal Disease
  – Ulcerative enteritis
  – Paratyphoid (*Salmonella* spp.)
  – Worms
  – Salt poisoning
Other Signs of Disease or Health Problems

- **Stress**
  (overcrowding, vaccination reaction, extreme temperatures, lack of feed or water)
What to do if your birds look sick:

• Isolate sick bird(s) immediately
• Dispose of dead birds promptly and properly
• Observe the rest of the flock for signs of disease
• Call your veterinarian, animal health technician, or Extension agent for advice and assistance
• Do not move birds or eggs off your farm
• Do not add new birds to flock
• Do not visit other farms
Not all poultry health problems are caused by infectious agents

Always consider non-infectious conditions (management factors or FLAWSS) first:

- **Feed quality**
- **Lighting**
- **Air quality and ventilation**
- **Water quality**
- **Space (feeders and drinkers)**
- **Sanitation**
Use medications judiciously and only when necessary

- Management problems can only be fixed by proper management changes and/or corrections
- Viral infections cannot be treated with antibiotics
- Bacterial infections can only be treated with the proper antibiotic
- Always consult a veterinarian before initiating any treatment*
- If antibiotics or other drugs are prescribed, follow recommended dose, route, duration of therapy, and withdrawal time

*Beginning January 1, 2017, the Food and Drug Administration (FDA) mandated that all medicated feed and antibiotics important to humans that are administered through the drinking water will require a written prescription from your veterinarian.
Infectious Laryngotracheitis
Species Affected

- Chickens, pheasants, peafowl
Cause

• Herpes virus
• Spread through infected birds and improperly administered live vaccines
  – Airborne transmission or through contaminated equipment, shoes, and clothing
Signs and Lesions

- Respiratory distress, coughing, sneezing, expectoration of bloody mucus
- Conjunctivitis and facial swelling
Prevention and Control

• Vaccination
  – Do not vaccinate if the disease is not present or has not been observed in your area
  – If vaccination is deemed necessary, MDA allows only Tissue Culture Origin (TCO) ILT vaccine in non-commercial poultry

• Biosecurity
  – Do not allow visitors to your farm nor visit other farms
  – Do not share equipment and vehicles
  – Clean and disinfect poultry house, coops, and equipment regularly and between flocks
Mycoplasmosis
(Chronic Respiratory Disease)
Species Affected

• Chickens and turkeys
Cause

- **Mycoplasma gallisepticum**
  - Secondary *E. coli* infection is common
- Transmitted through the egg, airborne droplets, or from bird to bird
Signs and Lesions

- Coughing, sneezing, facial swelling, nasal discharge, cloudy air sacs
- Deformed eggs, drop in egg production
- Pericarditis and perihepatitis (with secondary *E. coli* infection)
Prevention and Control

• Purchase chicks only from MG-negative sources (National Poultry Improvement Plan or NPIP participant)
• Provide medicated feed (containing Tylan® or Gallimycin®)
• Don’t mix birds of different species and age
Internal Parasites

www.backyardchickens.com
Species Affected

- All birds
Cause

- Roundworms (Ascarids)
- Hairworms (Capillaria)
- Cecal worms (Heterakis)
- Tapeworms (Cestodes)
Signs and Lesions

- Unthriftiness, stunted growth, emaciation
- Enteritis
- Anemia
- Decreased egg production
Prevention and Control

• Rotate birds in yards or pens
• Deworm flocks regularly, particularly those raised on the ground or in floor pens
• Provide medicated feed (containing broad-spectrum dewormer)
• Treat infected birds with the proper dewormer
  – *Piperazine* (Wazine™) is the only dewormer approved for use in poultry by the FDA but is effective only against roundworms and cecal worms
Coccidiosis
Species Affected

- Chickens and turkeys

*tinyfarmsglog.com*
Cause

• *Eimeria sp.*
• 9 species in chickens
• 7 species in turkeys
• Transmitted through infected droppings (containing oocysts)
Clinical Signs and Lesions

- **Cecal coccidiosis** (caused mainly by *E. tenella* in chickens)
  - High mortality
  - Bloody feces
  - Pale combs
  - Ruffled feathers
  - Lack of appetite
  - Coagulated blood in ceca
Clinical Signs and Lesions

- **Intestinal coccidiosis** (caused by *E. acervulina, E. brunetti, E. maxima, and E. necatrix*)
  - Loss of weight
  - Shriveled combs
  - Drop in egg production
  - Pale shanks
Prevention and Control

• Good management
• Provide medicated feed (with coccidiostats such as amprolium or Amprol™)
• Treat infected flocks promptly
External Parasites

www.tillysnest.com
Mites


keep-hens-raise-chickens.com
Species Affected

• All birds
Cause

• Scaly leg mite (*Knemidocoptes mutans*)
• Chicken mite (*Dermanyssus gallinae*)
• Northern fowl mite (*Ornithonyssus sylviarum*)

[www.ca.uky.edu](http://www.ca.uky.edu)
[www.chickenvet.co.uk](http://www.chickenvet.co.uk)
Signs and Lesions

- **Scaly leg mite:**
  - scales and crusts in legs, combs, and wattles

- **Northern fowl mite:**
  - blackened feathers, scabby skin around vent
Prevention and Control

• Scaly leg mite
  – Cull or isolate affected birds
  – Apply an oil-based product such as petroleum jelly, a 50:50 kerosene and cooking oil mix, or Blue Ribbon™ (a commercial mixture of plant oils, canola, and camphor) to affected areas

• Northern fowl mite
  – Monitor all birds and facilities for infestation; check egg flats and cases for mites
  – Treat birds with approved insecticide (such as carbaryl or Sevin™)
    – Use dry powder to dust birds
    – Use liquid spray or wettable powder for walls and floors to penetrate cracks and crevices
  – Wash plastic flats and racks with hot water and detergent

-Always follow the manufacturer’s directions.
-Observe all warnings and withdrawal periods.
Bumblefoot
(Pododermatitis)

www.backyardchickens.com
Species Affected

- Chickens (mostly males and heavy birds)

www.flickr.com
Cause

• Injury to the lower surface of the foot and subsequent infection with *Staphylococcus* bacteria
• Common causes of injury:
  • Rough perches
  • Splinters
  • Wire floors
  • Poor litter or bedding quality

www.avianweb.com
Signs and Lesions

- Lameness
- Swelling of the foot pad
- Hard, pus-filled abscess on foot pad

keep-hens-raise-chickens.com
Prevention and Control

• Provide good quality litter or bedding. Keep bedding clean, dry, and deep.
• Keep perches less than 18 inches from the floor to prevent foot damage due to impact from jumping.
• Remove potential sources of injury such as sharp objects and/or surfaces.
Treatment

• Soak foot in warm water and Epsom salts.
• Clean affected area with soap and warm water, then disinfect with alcohol.
• If skin is open, drain pus from abscess (If there is no break in the skin to allow drainage of abscess, use a sterile scalpel or sharp end of a disinfected blade to cut a small opening).
• Flush the abscess cavity with hydrogen peroxide to clean out pus and debris.
• Pack the cavity with antibiotic ointment and wrap the foot with gauze and elastic bandage. Repeat daily until foot heals.
FINAL THOUGHTS

• Be vigilant – continuous flock health monitoring is a MUST

• Use all available senses (sight, touch, smell, hearing) as well as COMMON SENSE

• Look for all possible causes and/or predisposing factors, i.e. do not “leave any stoned unturned”

• Initiate corrective or preventive measures promptly

• When in doubt, seek expert advice

• While practicing strict biosecurity, provide adequate feed, water, ventilation, heat, etc. (a.k.a. bird comfort or TLC)
Questions?