Small Flock Poultry Program

Monday, May 18: Getting Your Flock Started

Tuesday, May 19: Healthy Management Practices

Wednesday, May 20: How to Increase Egg Production

Thursday, May 21: Egg Handling, Food Safety and Egg Sales
Small Flock Poultry Program

Poultry Health Management

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Disease Management

- Minimize contact between your birds and:
  - Manure – source of bacteria
  - The ground – source of parasites (worms)
  - Wild birds and rodents – sources of many things bad
    - Eliminate habitat and attractants
      - Wild bird feeders and bird baths
      - Waterfowl ponds
    - Clean up spilled feed to reduce attraction
  - Pets – source of bacteria and pests (especially fleas)
Disease Management

- Recommend a flock management style of “All-in, All-out”
  - Get new birds of same age
  - When flock is old and production is low, depopulate all birds from premises
  - Clean and disinfect everything
  - Out period of at least 14 days
  - Repopulate with new birds
- This style of management helps to break the disease cycle
Introducing new birds to a flock

- Quarantine from existing flock for at least 3 weeks
  - Not in same building or pen
  - As far away as possible
  - Monitor for disease symptoms, particularly respiratory
  - Handle sick or quarantined birds AFTER the other birds.
  - Wash hands thoroughly and disinfect boots
- Not recommended to comingle birds of significantly different ages
Disease Diagnosis

- Over-the-phone diagnosis is very difficult
  - Many poultry diseases have similar symptoms
  - No veterinarian on staff in the Poultry Science Department

- Who to call?
  1. Local veterinarian
  2. Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL)
Texas Veterinary Medical Diagnostic Laboratory (TVMDL)

- tvmdl.tamu.edu
  - 3 poultry diagnostic labs in Texas
    - College Station - 979-845-3414
    - Gonzales - 830-672-2834
    - Center - 936-598-4451
  - Can preform necropsy for a fee
  - See website for more information
PT Testing

- Only required for selling live birds or hatching eggs (not required to sell table eggs or own birds)

- **Contact:**

  **Sydney Rosario**  
  Poultry Programs Administrator  
  Texas A&M Veterinary Medical Diagnostic Laboratory  
  483 Agronomy Road  
  College Station, Texas 77843-4471  
  pt-program@tvmdl.tamu.edu  
  979-845-3414
Disease Transmission

This scenario is a concern
Migratory Bird Patterns

- Pacific Flyway
- Central Flyway
- Mississippi Flyway
- Atlantic Flyway
- East Asia Flyway
Avian influenza (AI)

- Virus is carried by wild birds
- 2 forms:
  - Low pathogenic (LPAI)
  - Highly pathogenic (HPAI)
    - Highly contagious to domestic poultry
    - May cause high mortality in poultry flocks
- Spring, 2015 outbreak of HPAI across Midwest U.S.
  - Largest in U.S. history (50 million birds euthanized)
  - Devastating economic impacts
  - Consumers impacted by higher egg prices
Prevention of AI

- What can we do?
  - Vaccination not yet an option
  - **Only option:** must prevent infection

- How?
  - Sound biosecurity is the only tool we have
Biosecurity

- A set of management practices designed to reduce the risk of introduction and transmission of infectious diseases, pests and other organisms

- “Protection from infection"

- It’s easy
  - Use common sense
  - Requires effort EVERY DAY
Good Biosecurity

- 3 main components:
  - **Isolation** – prevent contact with infected vectors (things that can transmit disease)
  - **Traffic control** – limit access to flock to reduce exposure risk (people and vehicles)
  - **Sanitation** – disinfect anything that comes into contact with your flock (vehicles, equipment, coops, footwear, clothing, etc.)
Its About Controlling Vectors

- Chicks
- Other Poultry and Animals
- Feed and Water
- People
- Wild Birds
- Insects
- Rodents
- Housing
- Hatchery
- Vaccines & Equipment
- Manure
- Vehicles and Equipment

It's about controlling vectors at every step in the poultry and animal production process.
Biosecurity Suggestions

- Avoid visiting more than one flock per day
- Shower, change clothes and disinfect shoes between visits
- Use shoe covers to keep shoes clean
- Use dedicated clothes and shoes not worn anywhere else for checking on flock
Biosecurity Suggestions cont.

- Discourage presence of wild birds
- Not recommended to keep waterfowl and chicken/turkeys on the same premises
  - Not recommended to mix species of birds
- Do not share equipment, coops or old feed
- Consider all-in, all-out style of management
  - Don’t mix birds of different ages
Biosecurity is not only about AI

Virulent Newcastle Disease (vND)

**Virulent Newcastle disease**, formerly known as exotic Newcastle disease, is a contagious and fatal viral disease affecting the respiratory, nervous and digestive systems of birds and poultry. The disease is so virulent that many birds and poultry die without showing any clinical signs.

Virulent Newcastle disease is not a food safety concern. No human cases of Newcastle disease have ever occurred from eating poultry products. Properly cooked poultry products are safe to eat. In very rare instances, people working directly with sick birds can become infected with mild symptoms, such as conjunctivitis. These are easily prevent with personal protective equipment.

As of **May 15, 2020**, USDA has confirmed 476 premises in California as infected with vND, including 262 in Riverside County, 164 in San Bernardino County, 46 in Los Angeles County, 1 in Ventura County, 1 in Alameda County, and 1 in San Diego County. USDA also confirmed 1 infected premises in Utah County, Utah and 1 infected premises in Coconino County, Arizona.
USDA Biosecurity Program

- USDA-APHIS
  - www.aphis.usda.gov
- Defend the Flock Program
  - Information
  - Additional links to information
  - Sign up for biosecurity e-newsletter via email
Final Word on Biosecurity

If it ...

walks, talks, cheeps, flies, crawls, burrows, slithers, blows in the wind, or has tires,

... then treat it as a danger!
IDENTIFICATION, PREVENTION, AND TREATMENT OF COMMON DISEASES IN BACKYARD POULTRY

MARTIN D. FICKEN
DVM, PHD, DACVP, DACPV
Texas A&M Veterinary Medical Diagnostic Laboratory
Gonzales, Texas
Introduction

- **Veterinary / health professional support**
  - Strongly recommend consultation with a veterinarian or other health professional in diagnosing or determining treatment for disease problems.
  - The diagnostic laboratory is designed to support the local veterinary practitioners in the state and, where there is no such support, provide service directly to producers and raisers.
- A useful website with many solutions and supportive treatments for poultry and game bird producers is provided by Mississippi State University Extension. [http://extension.msstate.edu/content/solutions-and-treatments](http://extension.msstate.edu/content/solutions-and-treatments)
Mycoplasmosis

Cause – *Mycoplasma gallisepticum, M. synoviae*
- “Bacterium” with no cell wall (prokaryote).

Disease
- Respiratory rales, coughing, nasal discharge, conjunctivitis, sinusitis, watery eyes.
- Secondary bacterial infections (colibacillosis).
- Uncomplicated infections usually not fatal.
- The most common cause of disease in backyard flocks.

Diagnostic Tools
- PCR for MG/MS (detects the presence of the organism).
- Serology for antibodies.
Mycoplasmosis (*M. gallisepticum*)

Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Mycoplasmosis (*M. gallisepticum*)
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Mycoplasmosis treatment

Tylan® Soluble 100 gram (tylosin) package
- Mix 100 grams in 50 gallons water -> 2 grams/gallon for 5-7 days (3/4 – 1 teaspoon/gallon) (approved for poultry).
- Withdrawal time is 1 day in chickens and 5 days in turkeys.

Lincomycin – spectinomycin (water)
- LS-50® packet 75 grams (approved for chickens).
- Packet 16.7 g lincomycin, 33.3 g spectinomycin.
- 1 packet / 25 gallons drinking water.
- Administer 5-7 days.
- Withdrawal time is zero days.
Infectious coryza

Cause – *Avibacterium paragallinarum*

- Bacteria.

Disease

- Coughing, nasal discharge, conjunctivitis, sinusitis with swollen sinuses (honey-like consistency).
- Secondary bacterial infections (colibacillosis).
- Uncomplicated infections usually not fatal.
- A differential rule-out for mycoplasmosis.

Diagnostic Tools

- Bacterial culture of sinus material.
Infectious coryza (*Avibacterium paragallinarum*)

Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Infectious coryza treatment

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- Withdrawal time is zero days.
Infectious laryngotracheitis (ILT, LT)

Cause – Infectious laryngotracheitis virus

Disease

• Respiratory rales, coughing, conjunctivitis, expectoration of excess mucus and/or blood.
• Can be acute onset with rapid spread throughout the flock or smoldering chronic upper respiratory disease with increased mortality and excess mucus.
• Reportable disease to the Texas Animal Health Commission.

Diagnostic Tools

• PCR for ILT (detects the presence of the organism).
• Microscopic examination for characteristic lesions.
Infectious laryngotracheitis
Slide (left) courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Colibacillosis

Cause – *Escherichia coli*

- Bacteria which is most common cause of mortality in poultry; however, it is almost entirely secondary to some other disease process or stress.

Disease

- Depression, lethargy, moribund, ruffled feathers, dehydration, reluctance to move.
- Can be acute with sudden mortality or lingering disease with birds regressing in weight.
- Lesions consist of polyserositis, enlarged livers and spleens.
- Infections in hatchery lead to high mortality in very young chicks or poults within the first few days of life.

Diagnostic Tools

- Bacterial culture of lesions.
Colibacillosis

Slides courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University

Left slide (yolk sac infection). Right slide (colisepticemia).
Colibacillosis treatment

Tetracycline (water)

- Dosage of 200-1000 mg/gallon drinking water.
- Dose dependent on severity of infection.
- Administer 5-7 days.
- Withdrawal time is 1 day.
Marek’s disease

Cause – Marek’s Disease virus

• Virus that induces inflammation and neoplasia (cancer).
• Three serotypes
  • Serotype 1 (Virulent).
  • Serotype 2 (naturally avirulent).
  • Serotype 3 (avirulent turkey herpesvirus [HVT]).

Transmission

• Infectious virus is produced in feather follicle epithelium and is shed in chicken dander, thus contaminating the environment. Virus remains infectious for several months at room temperature and for years at refrigerator temperatures. Inhalation of infectious virus is the main route of transmission.
Marek’s disease

Disease

- Almost any organ system can be affected resulting in clinical disease that varies widely.
- Depends on virus strain, bird genetics, exposure rate, environmental factors.
- Paralysis, depression, respiratory distress, blindness, “poor-doers.” The paralytic and nervous symptoms usually are observed at 4 months of age or later.
- The neoplasia effects usually appear after 1 year of age.
- Once infected (and recovered), birds shed indefinitely.

Diagnostic Tools

- Necropsy with histopathology confirmation.
Marek’s disease
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Marek’s disease
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Marek’s disease Prevention

- Vaccination at 1 day of age in the hatchery or *in ovo* at 18 days of incubation.
- Large-scale poultry producers regularly vaccinate almost all commercial poultry at 1 day of age or *in ovo*. Backyard producers can purchase freeze-dried HVT vaccine and vaccinate their own birds subcutaneously.
- Once reconstituted the vaccine only lasts for about 2-3 hours. Minimum is 1000-dose vial.
Fowl pox

Cause – Fowl pox virus
  • Many species of birds have their own specific pox virus.

Transmission
  • Infection occurs through mechanical transmission of the virus to injured or lacerated skin. Biting insects (mosquitoes) serve as mechanical vectors often resulting in ocular infection. Virus can reach the laryngeal region via the lacrimal duct.

Disease
  • Mild to severe depending on infection rate.
  • Secondary infections, blindness, respiratory distress.
  • Disease can occur at any age.

Diagnostic Tools
  • Necropsy with histopathology confirmation.
Fowl pox
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Fowl pox

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Fowl pox
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Fowl pox (continued)

Treatment/Prevention

• Vaccination in the face of an outbreak or as preventative.
  • Fowl pox virus vaccine (wing-web or thigh-stick [turkeys]).
• Stab inoculation site should develop a small bump or scab (“vaccine take”) in about 7-10 days and should resolve in about 14 days.
• Vaccination is usually done in 4-6-week-old birds, but if early exposure occurs, vaccination of younger birds can be done by wing-web with one needle applicator. A booster dose is recommended at 6 weeks of age.
Fowl pox (vaccine)
Photograph courtesy of Stromberg’s Chicks & Game Birds Unlimited website

Fowl pox vaccine can be ordered over the Internet at various web sites under the search engine entry “fowl pox vaccine.”

Fowl pox vaccine
Poxine®
Other generic vaccines available.

May be combined with avian encephalomyelitis virus.
Coccidiosis

Cause – *Eimeria* species

- Many species of birds have their own coccidia.

Transmission

- Fecal oral transmission, life cycle is 4-6 days.

Disease

- Mild to severe depending on infection rate and species.
- Usually appears at 3 weeks of age or older.
- Depression, ruffled feathers, bloody droppings, mortality.
- Secondary *Clostridium* infections can occur causing necrotic enteritis.

Diagnostic Tools

- Necropsy/scrapings/histopathology/fecal flotation.
Coccidiosis (*Eimeria acervulina*)

Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Coccidiosis (*Eimeria necatrix*)
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Coccidiosis (*Eimeria tenella*)

Slides courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Coccidiosis treatment (water)

Amprolium

• Amprolium-P® / Amprol® / Corid® - 9.6% Oral Solution.

• Give at 0.012% level (8 fl oz per 50 gallons) for 3-5 days.

• Severe outbreaks give at 0.024% (16 fl oz per 50 gallons) for 3-5 days.

• Continue with 0.006% (4 fl oz per 50 gallons) for an additional 1-2 weeks.

• No withdrawal period.
Coccidiosis treatment (water)

Sulfadimethoxine

- **Albon®** concentrated solution (12.5%), 3.75 grams per ounce.
- **Chickens**
  - One (1) fluid oz (30 ml) per 2 gallons water (25 oz in 50 gallons).
- **Turkeys**
  - One (1) fluid oz (30 ml) per 4 gallons water (25 oz in 100 gallons).

- Treat for 6 consecutive days.
- Withdrawal period 5 days.
Coccidiosis treatment (feed)

Treatment in feed

• Amprolium (36.3-227.0 g/ton) (Amprol® or Corid®).
• Numerous other ionophores and chemicals (commercial applications).
• Some medicated feeds obtained at the various feed stores have amprolium as a coccidiostat.
Internal parasites

Common intestinal parasites of chickens

- Roundworms.
- Tapeworms.
- Threadworms.
- Cecal worms.

Symptoms may include weight loss, diarrhea, visible worms, or segments in feces.

A common complaint is that the birds eat normally or even voraciously but fail to gain or lose weight.
Roundworms
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Tapeworms
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Threadworms
Slide courtesy of TVMDL
Cecal worms

Slides courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
Worming treatments (flock)

Piperazine (Wazine®-17)

• Treats adult ascarids (roundworms) only.
• Treat every 4 weeks until 16 weeks of age.
• Four to 6 weeks of age, for each 100 birds: Use 1 fluid oz of Wazine-17 in 1 U.S. gallon of drinking water.
• Over 6 weeks of age, for each 100 birds: Use 2 fluid ozs of Wazine-17 in 2 U.S. gallons of drinking water.
Worming treatments (flock)

Fenbendazole (Safe-Guard® Aquasol)

- Concentration is 200 mg of fenbendazole/ml.
- Treats roundworms, cecal worms (probably threadworms).
- Label dose is 1 mg/kg body weight per day.
- Treat for 5 consecutive days.
- Fenbendazole stable suspension.
- Comes in 1 liter and 1 gallon sizes (relatively expensive).
- Approved in poultry, layers, and birds to be used for egg production.
- No withdrawal period.
Worming treatments (non-producing birds)

Fenbendazole (Safe-Guard® 10%, Panacur® 10%)

• Treats threadworms, roundworms, cecal worms.
• Mix 1 ounce of either product in one cup of water and then mix suspension with 15-20 pounds of feed, feed as only source of feed until completely consumed.
• Feed for 3 consecutive days.
• Fenbendazole in this formulation settles out of water medication.
• Not approved in poultry (off-label use) but is the same active ingredient as is in Safe-Guard® Aquasol.
Worming treatments (non-producing birds)

Ivermectin (oral or topical administration)

- Ivomec® 1% injectable or generic (not approved).
  - Administer at 0.1 ml/10 lbs body weight orally.
- Ivomec® pour-on 5 mg ivermectin/ml (not approved).
  - Administer 0.1 ml/kg (2.2 lbs) body weight topically.
- Treats roundworms, threadworms, gapeworms, plus many external parasites.
- Administer twice per year or more often if necessary.
- Not approved in poultry.
Worming treatments (non-producing birds)

Eprinomectin (topical administration)

• Ivomec® Eprinex® pour-on 5 mg eprinomectin/ml (not approved for poultry).
  • Administer at 0.1 ml/kg (2.2 lbs) body weight topically.
• Treats roundworms, threadworms, gapeworms, plus many external parasites.
• Administer twice per year or more often if necessary.
• Not approved in poultry.
Worming treatments (non-producing birds)

Albendazole (Valbazen®)
Levamisole (Prohibit®)
External parasites

Common external parasites of chickens

- Fleas
- Lice
- Mites

Symptoms may include weight loss, visible parasites, nervousness, scratching.

Severe infestations can result in mortality.
Fleas (Sticktight fleas)
Fleas
Lice (Body lice)
Lice
Mites
Slide courtesy of H. John Barnes, College of Veterinary Medicine, North Carolina State University
External parasite treatments (flock and premises)

Sulfur dust

• Dust bags for “self administration.”
• Application directly to birds.
• Sulfur directly into the litter.
External parasite treatments (flock and premises)

Organophosphates

- Rabon® 50 WP (stirofos).
  - Mix 0.5 pounds in 6 gallons water – treats 600 birds.
- Ravap® EC (stirofos + vapona).
  - Mix 1 gallon per 50 gallons water – treats 5000 birds.

Permethrin

- Tengard® SFR (36.8% permethrin).
  - Mix 4 ounces in 3.75 gallons water – treats 375 birds.
External parasite treatments (flock and premises)

Applications

• One gallon finished spray per 100 birds.
• Pressures of 75-125 psi (feather penetration).
• After birds treated, entire facility should be treated to point of run-off.
• One gallon finished spray per 100 square feet.
• Direct spray into cracks and crevices.
• Birds and entire area treated twice, 14 days apart.
Treatments/preventatives of interest

Garlic components

• Allicin (antibacterial/antipprotozoal activity).
• Ajoene (antipprotozoal activity).
• Methyl allyl trisulfide (antipprotozoal activity).

Efficacy is likely; however, the degree is uncertain.
Treatments/preventatives of interest

Apple cider vinegar water treatment claims

- Contains acetic acid (pH 2-3, same as proventriculus).
- Helps with digestion.
- Helps keep bacterial load down in the crop.
- Help reduce internal parasites within the intestine.
- Acts as a mild antibiotic (antibacterial).
- Contains vitamins, minerals, and trace elements.
- Efficacy is questionable; however, chickens may prefer acidified water over untreated water and therefore may drink more.
Treatments/preventatives of interest

Diatomaceous earth

- White greyish talc like powder that is the fossilized remains of marine phytoplankton called diatoms. It is mined from old sea beds in a similar way to salt and then ground to a fine powder.
- Included in dust bags for external parasites.
- Included in feed for internal parasite control.
- Should wear a respirator when handling.
- Efficacy is questionable.
Contact information

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