

# Backyard Poultry and Waterfowl: What you need to know

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## Overview

- Poultry history
  - Emergence of backyard flocks
- Common species and husbandry
- Physical exam
- Common diseases and treatment considerations

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## Chickens

- *Gallus gallus domesticus*
  - Descended from Red jungle fowl
  - ~5000 years of history with humans
    - Likely not a common food item until ~2000 years ago

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## Poultry

- Commercial flocks
  - All in, all out production flow
  - Separate broilers and egg layers
  - Industrial production on a grand scale
    - 50 billion chickens a year raised for meat and eggs globally
  - Strict repeated vaccination schedules

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## Poultry

- Backyard flocks
  - 2-10+ chickens
  - Mostly hens
  - Animals as "production pets"
    - Generally closer bond than as food animals

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## Backyard poultry

- Increasing number of backyard flocks in the US
  - Increased need for veterinary care
- Radically different from other pet birds
  - Different management/husbandry requirements
  - Individual vs herd health
  - Nearly complete different sets of disease

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## Backyard poultry

- Chickens as production animals
  - Primarily fresh eggs
  - Value placed on the flock as a herd
- Chickens as pets
  - Interactive, intelligent animals
  - Value placed on the individual animal

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## Backyard poultry

- Still considered food animals by USDA
  - Regardless of the client's perception of the animal

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## FDA regulation

- Prohibits the use of certain drugs
- §530.41 Drugs prohibited for extralabel use in animals.
  - (a) The following drugs, families of drugs, and substances are prohibited for extralabel animal and human drug uses in food-producing animals:
    - Chloramphenicol
    - Clenbuterol
    - Diethylstilbestrol (DES)
    - Dimetridazole
    - Iprnidazole
    - Other nitromidazoles
    - Furazolidone
    - Nitrofurazone
    - Sulfonamide drugs in lactating dairy cattle (except approved use of sulfadimethoxine, sulabromomethazine, and sulfaethoxypridazine)
    - Fluoroquinolones
    - Glycopeptides
    - Phenylbutazone in female dairy cows 20 months of age or older
    - Cephalosporins (not including cephalapirin) in cattle, swine, chickens, and turkeys

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## FDA regulation

- Meat and egg withdrawal times
  - [www.Farad.org](http://www.Farad.org)
  - The "Green book" – [www.animaldrugsatfda.fda.gov/adafda/views/#/home/previewsearch](http://www.animaldrugsatfda.fda.gov/adafda/views/#/home/previewsearch)
  - "Pharmacokinetics of Veterinary Drugs in Laying Hens and Residues in Eggs: a Review of the Literature"
  - Poultry Medications Formulary
    - [www.poultrymeds.cvspervice.com/catindex/main](http://www.poultrymeds.cvspervice.com/catindex/main)

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## Veterinary Feed Directive

- For drugs given in food or water of food animals that are given EXACTLY per label instructions in regard to dose, concentration, frequency, duration, and is not intended for extra-label drug use.
- <https://www.avma.org/KB/Resources/Pages/VFD123.aspx>

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## Owner awareness

- Document, document, document!
  - Discussion with owners about withdrawal times
  - Consent to treat forms
    - Recognizing the animal as a food animal
    - Outlining the timeline for withdrawal times

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What will you see in practice?

- Chickens
- Ducks
- Geese

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Chicken breeds

- Rhode Island Red
- Orpington
- Plymouth Rock
- Leghorn
- Silkies
- Polish

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Duck species/breeds

- Pekin duck
- Indian runner duck
- Call duck
- Crested duck
- Muscovy duck

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## Geese breeds

- Chinese geese
- Pomeranian geese
- Sebastapol geese
- Embden

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## Husbandry

- Where are your owners getting their info?
  - Feed store
  - Internet
  - Books

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## Chicken Husbandry

- Living space
  - Coop (ideal measurements)
    - 2-4sq ft per bird, minimum
    - 1 nest box per 4-5 hens, 1 sq ft per nest box
    - 8 inches of roost space per chicken
    - Feeders and drinkers
      - 1 per rooster, spaced apart
  - Yard
    - Protection from predators
    - 8-10 sq ft per chicken
      - More room for multiple roosters

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## Chicken Husbandry

- Litter
  - Maintain litter so it is fluffy and absorbent
    - When it isn't, time to change
    - Deep clean and change over at least once a year

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## Chicken Husbandry

- Ventilation
  - Fans
    - Cubic feet of air per minute rating (cfm)
      - Rule of thumb: 5 cfm per chicken

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## Chicken Husbandry

- Nutrition
  - Commercial pellet/crumble
  - Varied recommendations for life stage and type of chicken
    - Layer vs Broiler
  - Additional foods
    - Fresh greens
    - Forage
    - Grains?
    - Mealworms
      - Sparingly- generally junk food
    - Other bugs
      - Pheonix worms, Dubia roaches

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## Husbandry

- Grit?
  - Depends on the feed and forage options
  - Inert grit
  - Mineral grit (oyster shell)

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## Waterfowl husbandry

- Water source
  - Swimming and bathing are essential behaviors
    - Kiddie pool
    - Ponds
  - Feeding in water

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## Waterfowl husbandry

- Nutrition
  - Waterfowl specific feed
    - Generally lower protein requirement than chickens
  - Can be fed chicken layer feed
    - Increased niacin requirement
      - Brewers yeast added to feed

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## Physical examination

- Similar systematic approach as with other birds
- Much calmer disposition
  - Most physical examinations can be done with minimal restraint
- Watch for:
  - Pecking
  - Scratching
  - Flapping wings

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## Physical examination

- Points of interest
  - Ocular examination
  - Respiratory tract
    - Choana
    - Larynx
  - Crop (ingluvium)
  - Coelomic palpation
  - Feet and legs

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## Common diseases

- Selected common diseases for backyard poultry
- For more information, consult more detailed sources

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## Reproductive disease

- **Egg yolk peritonitis**
  - Chicken, ducks, geese
  - Presentation: Misshapen eggs, poorly calcified, or lack of eggs, or just general ADR per owner
  - Physical examination:
    - Coelomic distension
    - Weight loss
    - Lethargy
    - Increased respiratory rate or effort at rest

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## Reproductive disease

- **Egg yolk peritonitis**
  - **Diagnosis**
    - Based on clinical signs and history
    - Radiographs
    - Ultrasound
    - Coelomocentesis of fluid
  - **Treatment**
    - Guarded prognosis
    - Surgical correction- eliminates production potential for individuals
    - Analgesia
    - Antibiotics as indicated by diagnostics

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## Respiratory disease

- ***Mycoplasma gallisepticum, M. synoviae***
  - Chickens, ducks, geese
  - Slow to develop long course of disease
    - Ocular d/c
    - Nasal discharge
    - Mild tracheitis
    - Coughing
  - Vertical and horizontal transmission
  - Diagnosis: PCR vs culture

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## Respiratory disease

- Infectious bronchitis
  - Chickens
  - Coronavirus
  - High morbidity/low mortality
    - Can have secondary infections
  - Horizontal transmission, highly contagious direct or indirect
  - Diagnosis: PCR, viral isolation, serology
  - Treatment:
    - Supportive care

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## Respiratory disease

- Fowlpox
  - Chickens
  - Avian pox virus (Avipoxvirus)
  - 2 main forms
    - Wet pox
      - Fibronectin and proliferative lesions of the upper respiratory mucosa
    - Dry pox
      - More classic pox skin lesions along featherless skin
  - Diagnosis: Histology or PCR
  - Treatment
    - Supportive care

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## Respiratory disease

- Newcastle disease
  - Chickens
  - Possible subclinical disease in ducks and geese
  - Avian paramyxovirus, Newcastle disease virus
  - OIE reportable
  - Three main forms
    - Velogenic- acute onset, respiratory and neurologic signs, high morbidity/mortality
    - Mesogenic- Respiratory and neurologic disings, moderate morbidity/mortality
    - Lentogenic- Mild respiratory signs, moderate-high morbidity, low mortality

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## Respiratory disease

- Newcastle disease
  - Clinical signs: conjunctivitis and facial swelling, tracheitis and pulmonary congestion (velogenic disease)
  - Horizontal, direct and indirect transmission
  - Diagnosis: PCR, viral isolation
  - Zoonotic potential low, but self limiting conjunctivitis possible. Flu like symptoms with immune suppression

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## Respiratory disease

- Avian Influenza
  - Chickens
  - Possible subclinical disease in ducks and geese, carrier states
  - Orthomyxoviruses
  - 2 main forms
    - Low pathogenicity: mild to severe disease, high morbidity/low mortality
    - High pathogenicity: acute infection, respiratory and neurologic signs, high morbidity/mortality

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## Respiratory disease

- Avian Influenza
  - Clinical signs:
    - LPAI: ocular and nasal d/c, sneezing, tracheitis, pulmonary edema
    - HPAI: peracute death, usually less pronounced respiratory signs than LPAI
  - Transmission: horizontal, direct or indirect
  - Diagnosis: PCR, viral isolation
  - Zoonotic potential of some forms (H5N1)

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## Respiratory disease

- Aspergillosis
  - Chicken, ducks, geese
  - *Aspergillus spp.*
  - Range of clinical signs, subtle to severe
  - Transmission
    - Environmental exposure- not contagious from bird to bird
  - Diagnosis: PCR, cytology, culture, serology
    - Routine bloodwork- severe leukocytosis (WBC >40,000)
  - Treatment
    - Treating affected birds with antifungals

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## Respiratory disease

- *Syngamus trachea* (gape worm)
  - Chickens
  - Gaping inspiration (tracheal obstruction)
  - Diagnosis: fecal float, presence of ova in sputum, visualization of worms within trachea
  - Treatment
    - Antiparasitic therapy
    - Physical removal of worms from trachea

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## Musculoskeletal disease

- Marek's disease
  - Chickens
  - Herpesvirus
  - Exceedingly common
  - Clinical signs in 12-20 weeks of age, can be as young as 3-4 weeks old
    - Incubation of 4-12 weeks
  - Clinical signs:
    - Paralytic form- asymmetric disease, ischiadic nerve infection, birds unable to stand
    - Ocular form- Gray eye

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## Musculoskeletal disease

- **Marek's disease**
  - Highly contagious
  - Virus persists in environment essentially forever
  - Diagnosis- antemoterm detection difficult due to location of infection (nerve)
  - Vaccination at day 1 of age
    - A race between viral infection and viral immunity

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## Musculoskeletal disease

- **Bumblefoot**
  - Chickens, ducks, geese
  - Uneven pressure/wear to the plantar surface of the foot
    - Ranges from scale loss and erythema to ulceration with abscessation and osteomyelitis
  - **Predisposing factors**
    - Overweight/obesity
    - Roughened surfaces, lack of proper variation in environmental surfaces
    - Poor sanitation in environment

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## Musculoskeletal disease

- **Bumblefoot**
  - **Diagnosis**
    - Physical examination
    - Radiographs to assess underlying bone
    - Cytology/culture of affected tissues
  - **Treatment**
    - Environmental correction
    - Topical therapy
    - Appropriate analgesia
    - Antibiotic therapy as warranted
    - +/- surgical debridement in severe cases

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## Musculoskeletal disease

- Angel wing
  - Ducks and geese
  - Developmental abnormality to the carpal joint in young waterfowl
    - Lateral rotation to the wing distal to the carpus
  - Associated with rapid growth and high calorie/protein diets
  - When young, can switch to lower calorie diet and wrap wings to correct
  - Unable to correct when mature

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## Gastrointestinal disease

- Ingluvitis (crop infection/inflammation)
  - Chickens, ducks, geese
  - Distention of the crop
  - Primary or secondary to other disease?
    - Rule out other disease processes leading to dehydration and decreased motility
  - Crop impactions
    - Grass, straw, foreign material
    - Secondary infections

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## Gastrointestinal disease

- Ingluvitis (crop infection/inflammation)
  - Sour crop
    - Primary or secondary bacterial/fungal infection of crop
  - Sampling:
    - Crop wash
    - Cytology/gram stain/culture
  - Appropriate antimicrobials based on results

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## Gastrointestinal disease

- Intestinal parasites
  - *Ascaridia galli* (Roundworms)
  - *Heterakis gallinarum* (Cecal worm)
  - *Eimeria*
  - *Davainea proglottina*, *Raillientina* spp (Tapeworms)
  - *Capillaria audinflata* (Hair worm)

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## Gastrointestinal disease

- Intestinal parasites
  - Treatment
    - As indicated for flock purpose and diagnosis of parasites
    - Follow regulations for parasite treatment
  - Prevention
    - Effective biosecurity
      - Fecal exam for new individuals/groups
      - 30 day quarantine period

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## Additional Resources

- Exotic Animal Formulary, 5<sup>th</sup> ed
- The Chicken Health Handbook, 2<sup>nd</sup> ed
- Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners, 1st Ed
- Association of Avian Veterinarians

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## Summary

- Backyard chickens may be viewed as pets, they are considered food animals and are subject to all USDA/FDA regulations.
- Although different from psittacines, many problems can be husbandry related. Brush up on your general husbandry for owner recommendations.
- Common things happen commonly. Review the common diseases and treatments for various conditions.

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