CHICKENS 101
INTRODUCTORY COURSE

- Robert Kluson, Ph.D
AG/NR Extension Agent III
UF/IFAS Extension Sarasota County
INTRODUCTION

Objectives of this Workshop

- Information and resources for backyard chicken husbandry in urban & rural settings
- Science-based information on chicken biosecurity
- Support for sustainable, local foods production
- Information on local zoning regulations about backyard chickens
WORKSHOP OUTLINE

(8:30 – 10:00) Dr. Robert Kluson, UF/IFAS Extension Sarasota County
  + Regulations, Nutrition & Biosecurity

(10:00 - 10:15) Break

(10:15 – 11:15) Jean Rogalsky, Pinellas County 4-H Extension Agent
  + Reproduction, Development, Breeds & Anatomy

(11:15 – 11:45) Ira Kleinschmidt, Urban Chicken Tractors
  + Housing and Predator Control
OVERVIEW: BENEFITS OF CHICKENS

• Nutritious food for family consumption
• Sustainable local foodsheds
• Pet therapy
• Entertaining to watch
• Fertilizer production
• Bug terminator
• Agrobiodiversity conservation
• Biology & food education
• Promote friendly neighbors w/ egg share
• Bridge urban and rural communities
OVERVIEW: BREEDS
Chicken Terms
OVERVIEW:

DEVELOPMENT

(Chart showing the life cycle of a chicken, including stages from egg inside hen to hen roosting.)
Why have my hens stopped laying?

Identified Factors To be Reviewed in Talks:

- Nutrition
- Disease
- Age
- Management

http://edis.ifas.ufl.edu/ps029
FOOD FOR THOUGHT
SO WHICH CAME FIRST:
THE CHICKEN OR THE EGG?

See the July 14, 2010 news report at
http://www.msnbc.msn.com/id/38238685/ns/technology_and_science-science/t/which-came-first-chicken-or-egg/
for the record, I came first.
OVERVIEW: HEALTH FACTORS

- Cold
- Humidity
- Bacteria
- Viruses
- Protozoa
- Loud Noises
- Beak Trimming
- Parasites
- Mold & Mycotoxins
- Poor Ventilation
- Dust
- Heat
- Cold
- Vaccination
- Rough Handling
- Poor Sanitation
- Weighing
- Molting
- Pecking Order
- Crowding
- Dirty Water
- Poor Litter Quality
- Nutritional Deficiencies
- NH₃/H₂S
- Feed Restriction
- Weighing
OVERVIEW: BISECURITY

Don’t Mess With Me!
Can I have chickens where I live?

Where do I buy chickens and supplies?

Where do I get follow-up information?
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Regulations
THE BASICS: GETTING STARTED

Laws and Regulations

- Be aware of your city ordinances before planning a backyard flock
- If chickens are legal, there may be restrictions and/or requirements that must be followed, such as
  - number of hens
  - rarely are roosters permitted due to noise
  - size of coop
  - distance of coop to residences
Zoning Ordinances

- Zoning Ordinance information for any city
  - Minicode Corporation website http://www.municode.com/
  - Free database access

- Zoning Ordinances in Pinellas County, FL
  - County (unincorporated): allowed in rural areas and now on single family property within the R-1, R-2, R-3, R-4, and R-6 zoning districts and within manufactured home subdivisions. Not allowed within mobile home/manufactured home parks or on duplex, triplex or multifamily properties.
  - Municipalities: not permitted except in Cities of Belair, Dunedin, Gulfport, Largo, and St. Petersburg

http://pinellascountyfellowsforbackyardpoultry.weebly.com/ordinances.html
What are your options if your local zoning does not allow backyard chickens?

Be aware that citizen groups in cities across the U.S. (which you can join) have begun to promote keeping city flocks for the following reasons:

- a step towards self-sufficiency through the backyard production of eggs
- a compatible partner to a backyard garden through pest control and the production of fertilizer
- a cut down on kitchen scraps by feeding to the flock
- education for children on where food comes from
- desire for some to enjoy aspects of "country living" despite their urban environment
The Basics: Laws & Regulations

Pinellas County, FL - Amendments to Chapter 138, the Zoning Provisions, of the Pinellas County Land Development Code

- Successfully petitioned by Pinellas County Citizens for Backyard Poultry. Final approval in December, 2011.

- Ordinance summary
  + 4 hens limit/household; no roosters
  + chicken coop and enclosure in only backyards with 10’ minimum setbacks from property line and screening from neighbor’s view required
  + chicken coop w/ 3 sq. ft/ bird and predator proof
  + commercial eggs or poultry sales and poultry slaughter not allowed
General Conditions for the keeping of chickens in the R1-R6 zoning districts.

1. Up to 4 chickens are allowed to reside on an occupied single-family property within the R-1, R-2, R-3, R-4, and R-6 zoning districts. Chickens may not be kept on duplex, triplex or multifamily properties. Chickens are allowed within manufactured home subdivisions, but are not allowed within mobile home/manufactured home parks.

2. Chickens must be kept within the coop or enclosure at all times.

3. No ducks, geese, turkeys, peafowl, or male chickens/roosters, or any other poultry or fowl may be kept under the provisions of this Section of the Code.

4. Chickens shall be kept for personal use only. The selling of chickens, eggs or chicken manure, or the breeding of chickens for commercial purposes is prohibited.

5. The slaughtering of chickens on premises is not allowed.

6. The coop and enclosure must be screened from the neighbor’s view, using an opaque fence and/or landscape screen.
(b) Location and Requirements for Chicken Coops and Enclosures in the R-1 through R-6 zoning districts.

1. Any chicken coop and fenced enclosure must be located in the rear yard. No coop, enclosure or chickens shall be allowed in any front or side yard. (Corner lots shall be excluded from the side setback restriction).

2. The coop and enclosure must be a minimum of 10 feet from the rear and side property line.

3. If the coop structure exceeds 100 square feet in size (10 foot by 10 foot), a building permit is required to be obtained from Pinellas County Building and Development Review Services.

4. The coop shall be covered and ventilated, and a fenced enclosure/run is required. The coop and enclosure must be completely secured from predators, including all openings, ventilation holes, doors and gates (fencing or roofing is required over the enclosure in addition to the coop, in order to protect the chickens from predators).

5. All stored feed must be kept in a rodent and predator-proof container.

6. The coop shall provide a minimum of three square feet per chicken and be of a sufficient size to permit free movement of the chickens. The coop may not be taller than six (6) feet, measured from the natural grade, and must be easily accessible for cleaning and maintenance.
(c) Health, Sanitation and Nuisance as applied to the keeping of chickens in the R-1 through R-6 zoning districts.

1. Chickens shall not be permitted to trespass on neighboring properties, be released or set free, and shall be kept within a coop and enclosure.

2. Chicken coops and enclosures shall be maintained in a clean and sanitary condition at all times. Chickens shall not be permitted to create a nuisance consisting of odor, noise or pests, or contribute or any other nuisance condition.

(d) Enforcement

1. Enforcement regarding the keeping of chickens within any zoning district is addressed within Section 138-54 of this Code.

2. In a public health emergency declared by the Director of the Pinellas County Health Department, including but not limited to an outbreak of Avian Flu or West Nile virus, immediate corrective action may be required, in accordance with applicable public health regulations and procedures and in conjunction with Animal Services.

3. No person convicted as a repeat violator of Sections 138-1348(a) through (d) of this Code may be permitted to, or continue to, keep chickens on their premises. Repeat violators are defined in Section 138-1 of this Code.
Backyard Chicken Sources

- Local Chicken Breeders
  - FL Poultry Breeders Directory
  - American Livestock Breeds Conservancy
- Mail Order Companies
  - e.g., Murray McMurray Hatchery
- Local Supply Stores
  - e.g., Tractor Supply
THE BASICS: GETTING STARTED

**Backyard Chickens Supplies Stores**

- Feed & Seed Stores
- Pet Supply Stores
- Country Supply Stores
- Craig’s List
A Starting Point is to Learn How do Poultry Eat?

Known as a modified monogastric system
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Nutrition
Health
Chicken Digestion Parts and Functions

- **Mouth/Beak** - gather and break down feed (no teeth)
- **Esophagus** - tube from mouth to stomach that is open at the mouth end
- **Crop** - feed storage and moistening
- **Proventriculus** - glandular stomach (HCl and gastric juices); enzymatic
- **Gizzard** - muscular stomach; mechanical breakdown; grit particles are essential
Chicken Digestion Parts and Functions

**Small Intestine** - enzymatic digestion and absorption
- Functions of the small intestine: digestion of proteins, carbohydrates, and fats; absorption of the end products of digestion
- Enzymes in the small intestine

**Ceca** - site of beneficial digestive microbes

**Large Intestine**
- bacterial activity
- water absorption
- waste storage

**Cloaca** - common chamber for GI and urinary tracts

**Vent** - common exit for GI and urinary tracts
What do Poultry Need??

- Water.............For temperature regulation & digestion
- Protein...........11 of 20 amino acids
- Carbohydrates
- Fat...............1 fatty acid
- Vitamins..........13
- Minerals.........27 known

Seventy percent of the cost of raising chickens goes for feed. This is an investment rather than an expense because the better the birds are fed, the more productive they will be.

http://www.caes.uga.edu/Publications/pubDetail.cfm?pk_id=6885&pg=np&ct=poultry&kt=&kid=&pid=#Fee
Nutritional requirements to provide a balance diet depend on:

- Maintenance
- Growth
- Production
- Health of the birds
• Use the right feed

• Do not feed layer feeds to broilers.
• Do not feed finely ground feed.
• Most commercial feeds are designed to meet all of the bird’s requirements when fed as a sole source of nutrition.
### Layer Nutrition Example

<table>
<thead>
<tr>
<th>Stage (weeks)</th>
<th>% Crude protein required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter 1-6</td>
<td>20-23%</td>
</tr>
<tr>
<td>Pullets 6-14</td>
<td>15-19%</td>
</tr>
<tr>
<td>Pullets 14-22</td>
<td>12%</td>
</tr>
<tr>
<td>Layer/Breeder Hens</td>
<td>16%</td>
</tr>
</tbody>
</table>
Commercial Feeds

Nutritionists for the commercial poultry industry have developed formulations for complete nutrition of chickens according to growth stage.

Complete feeding diets need no additional supplements and may be purchased as mash, crumbles, or pellets. Avoid powdery feeds.

Calcium (e.g., crushed oyster shell) and hard, insoluble granite grit should be provided as supplemental feed on demand.

Do not mix scratch grain with a complete commercial ration. Cracked corn, for example, is low in protein. By mixing cracked corn with a complete commercial grower ration, you dilute (reduce) the protein level as well as the vitamin and mineral
Feed Additives (Optional)

+ **Antioxidant**: Prevents rancidity of the fat in the diet or to prevent nutrient loss.

+ **Pellet binders**: Used to improve texture and firmness of pelleted feeds.

+ **Hormones are not added to any poultry feeds.**

+ **Coccidiostats**: To prevent coccidia problems with young chickens. Mature chickens develop a resistance to coccidiosis if allowed to contract a mild infection of the disease. The medicated feed is then replaced with a nonmedicated feed.

+ **Antibiotics**: To stimulate growth rate and feed efficiency of young chickens.

Follow feeding directions and withdrawal times for feeds with coccidiostats and antibiotics.
THE BASICS: NUTRITION

+ Store feed in container with a tight-fitting lid & a cool, dry place. Never feed moldy feed.
+ Limit purchases to a 2-3 week supply.
+ Keep feed and cool, clean water available to birds at all times.
+ Ration-feeding of diets can result in reduced growth, egg production and eggshell strength.
+ Fill feeders at ¾ capacity to avoid excessive waste.
What Inhibits Water & Feed Intake?

- Inadequate Water
- Stale or rancid feed
- Mold
- Disease
- Heat
**Feeders**

- **Hanging System**
  - Raise and lower to bird height
  - Outer lip level with birds back
  - Prevents spillage and spoilage

- **Trough Feeder Systems**
  - Chickens more susceptible to disease
  - Taken out of pen before moving
  - More chickens can feed at once

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**THE BASICS: NUTRITION**
Watering Systems

- Five-gallon bucket atop the pen will gravity feed a bell type
- Mesh screen across top
- Attach to pen
- Hoses are used on nipple type
- Daily water consumption at 90° F for chickens…. approx. 0.5 pint/bird
- Water intake can vary greatly
Alternative Feed Ingredients

Amaranth
Buckwheat
Canola meal
Earthworms
Oats
Potato protein
Quinoa
Rice bran
Rye
Seaweed

http://www.extension.org/poultry
## Acceptable Kitchen Scraps & Foods Examples

<table>
<thead>
<tr>
<th>Food</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Raw &amp; applesauce</td>
<td>Apple seeds contain cyanide, but not in sufficient quantities to kill.</td>
</tr>
<tr>
<td>Asparagus</td>
<td>Raw &amp; cooked</td>
<td>Okay to feed, but not a favorite.</td>
</tr>
<tr>
<td>Bananas</td>
<td>Without peel</td>
<td>High in potassium, a good treat.</td>
</tr>
<tr>
<td>beans</td>
<td>Well cooked only</td>
<td>Also greenbeans</td>
</tr>
<tr>
<td>Berries</td>
<td>All kinds</td>
<td>A treat, especially strawberries.</td>
</tr>
<tr>
<td>Broccoli &amp; Cauliflower</td>
<td>Tuck into a suet cage and they will pick at it all day.</td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>Raw &amp; cooked</td>
<td>They like carrot foliage too.</td>
</tr>
</tbody>
</table>

## Don’t Feed the Following Kitchen Scraps & Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Reason Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw green potato peels</td>
<td>Toxic substance called Solanine.</td>
</tr>
<tr>
<td>Anything real salty</td>
<td>Can cause salt poisoning in small bodies such as chickens.</td>
</tr>
<tr>
<td>Citrus</td>
<td></td>
</tr>
<tr>
<td>Dried or undercooked beans</td>
<td>Raw, or dry beans, contain a poison called hemaglutin which is toxic to birds.</td>
</tr>
<tr>
<td>Avocado skin &amp; pit</td>
<td>Skin and pit have low levels of toxicity.</td>
</tr>
<tr>
<td>Raw eggs</td>
<td>You don’t want to introduce your chickens to the tastiness of eggs which may be waiting to be collected in the nestboxes.</td>
</tr>
<tr>
<td>Candy, chocolate, sugar</td>
<td>Their teeth will rot ?!... No, it’s just bad for their systems, and chocolate can be poisonous to most pets.</td>
</tr>
</tbody>
</table>
THE BASICS: NUTRITION

- grub larvae composter & grower

- Use grub larvae as food high in fats & protein

Black Soldier Fly

Grub larvae

Adult
Chickens that can go outdoors can supplement their diet with greens and insects.

It will not take them long to devour the forage within their enclosure.

If free ranging is used to supplemental the diet then do not use chemical pesticides in foraging area.
THE BASICS: BENEFITS OF BACKYARD CHICKENS & FORAGE FEEDING

• Eggs from pasture-raised compared to commercial, confinement industry hens have the following:

• 1/3 less cholesterol
• 1/4 less saturated fat
• 2/3 more vitamin A
• 2 times more omega-3 fatty acids
• 3 times more vitamin E
• 7 times more beta carotene

1 http://www.motherearthnews.com/eggs.aspx
Foraging Feeding

• Caeca develop microbes with the capacity to digest fiber and eat backyard forage.

• Poultry are not ruminants and cannot digest cellulose in most plants very efficiently.

• Chickens will eat almost anything as long as it is not too tall or not too tough.
Managing Backyards for Forage

- Keep the yard vegetation young and productive.
- Poultry coops should be laid out so it is easy to move pens.
- Oats, clovers mixed with grasses are most palatable.
- But be cautious – some seed blends are not adapted to our area.
Growth curves for cool-season perennial grasses, warm-season perennial grasses, and winter annuals.

**SEASONALITY OF FORAGES**
<table>
<thead>
<tr>
<th>Insect</th>
<th>Protein %</th>
<th>Fat %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crickets</td>
<td>6.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Termites</td>
<td>14.2</td>
<td>NA</td>
</tr>
<tr>
<td>Caterpillars</td>
<td>28.2</td>
<td>NA</td>
</tr>
<tr>
<td>Grasshopper</td>
<td>14.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Water Bugs</td>
<td>19.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Spider</td>
<td>63</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Bay Area Bug Eating Society
Chicken Foraging Helpful Facts

- The amount of sun and the time of day has the most impact on foraging activity.
- Spend more time outside foraging during the early morning and late afternoon, compared to around noon.
- Foraging during overcast conditions is higher than during full sun.
- To maximize foraging, provide shade and remove feeders in the morning when birds are most likely to forage.
- On pastures, birds may eat enough nutrients to supplement 10 to 30% of diet.
I'm not sure why my hens have stopped laying. Can you identify any factors that might be causing this?
**Nutrient Deficiency Effects**

- **Salt** - feeding a salt-deficient diet will lead to increased feather pecking and a decline in egg production.

- **Calcium** - inadequate calcium consumption will result in decreased egg production and lower egg shell quality.

- **Vitamin D** - inadequate levels of vitamin D quickly result in decreased egg production.

- **Protein** - if dietary protein is too low or the amino acid requirements are not met, poor egg production and hatchability will occur.

http://www.extension.org/pages/68178/basic-poultry-nutrition
Nutrient Deficiency Effects

- **Fat** – impairment of the absorption of fat-soluble vitamins (A, D, E, and K) is the most serious consequence of a dietary deficiency of fat and will adversely affect egg production.

- **Water** - shortage of water for just a few hours can result in reduced egg production, so clean water should be available at all times.
**Chicken Health Key Concepts**

+ Disease
  × any departure from the normal state of health
+ Observations – key to managing health
  × Facilities
  × Records
  × Birds
+ Normal appearance and behavior
+ Many Diseases Produce Similar Signs
Disease Categories & Examples for Poultry:

- External Parasites
  - Lice, ticks, mites

- Internal Parasites
  - Roundworms, tapeworms, protozoa

- Infectious Diseases
  - Bacteria, virus

- Environment Related Problems
  - Heat/cold stress, toxic plants, rodents & droppings
THE BASICS: HEALTH - STRESSORS

- Cold
- Humidity
- Bacteria
- Viruses
- Protozoa
- Loud Noises
- Parasites
- Bacteria
- Viruses
- Protozoa
- Beak Trimming
- Nutritional Deficiencies
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- Poor Ventilation
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- Poor Nutrition
- Deficiencies
- NH₃/H₂S
- Heat
- Cold
- Crowding
- Weighing
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- Pecking Order
THE BASICS: HEALTH

- Preventative practices for all stressors are used in natural poultry health management
  - Reducing stress
  - Adequate spacing
  - Proper temperature, ventilation and litter conditions
  - Good nutrition
  - Clean water

THE BASICS: HEALTH

- Maintaining a healthy gastro-intestinal (GI) system is a vital preventative practice of maintaining healthy poultry and preventing disease.

- **Natural intervention involves strategies**
  - use of prebiotics and probiotics in the diet
  - competitive exclusion to alleviate GI problems
  - sanitation between flocks is particularly important
  - a downtime of 2-3 weeks will help control pathogens that need a host to survive
  - the house and equipment, including water lines, feeders, nestboxes, and roosts, should be cleaned and sanitized
Do Daily Observations:

- Signs of outside influence
  - Rodents, wildlife, insects

- Feed and water sources
  - Number and availability
  - Clean feed and water

- Litter or ground

- Roosts and manure
Observations: Records

- Acceptable parameters
- Measurable data
- Past History
- Current Information
  - What are the birds doing?
  - How long?
  - How many affected?
  - When did it first happen?
  - Has it happened before?
  - What has been done? (Changes)
    - Tests
    - Deaths
    - Treatments
Observations: Birds

- Behavior
  - Flock
  - Individual
- Examples
  - Eating, drinking, interactions
OBSERVATIONS: EXAMINATION

- Preliminary
  - done while observing birds

- Complete
  - must catch bird
  - systematic examination of anatomic systems
  - checking for variation from normal

- Fecal observations
  - For guide see http://pluckandfeather.com/chicken-poo-chart-graphic.html
LEARN SYMPTOMS OF DISEASE

- While backyard flocks typically have less disease risk, vigilance is required.
- Diseases can spread from wild birds and pests, so keep an eye out during your daily health checks for these symptoms:

  Increased mortality  Decreased production
  No appetite   Unusual behaviors
  Diarrhea   Coughing
  Lameness   Depression
  Blisters, swellings   Unthriftness
  High number of ill animals

__________________________________________________________________

While backyard flocks typically have less disease risk, vigilance is required.
Diseases can spread from wild birds and pests, so keep an eye out during your daily health checks for these symptoms: Increased mortality, Decreased production, No appetite, Unusual behaviors, Diarrhea, Coughing, Lameness, Depression, Blisters, swellings, Unthriftness, High number of ill animals.

UF UNIVERSITY OF FLORIDA
IFAS Extension
**Ectoparasites** - organism that feeds on the exterior of the body of the host.

- **Mites & Lice**
MITES & LICE

- **Mites**

  **Size:** 1 millimeter in diameter

  **Color:** Dark Reddish Black

  **Egg Color & Location:**
  White to off-white along the feather shaft

Mites live on the host and in the environment
Lice

Size: 2-3 millimeters long

Color: Light Brown

Egg Color & Location:
White and at the base of the feather

Lice only live on the host, and appear to be fast moving.
MITES & LICE

Symptoms:

- Decreased Food Intake
- Decreased Egg Production
- Decreased Weight Gain
- Increased Susceptibility to Other Diseases

If any of these symptoms are observed a visual inspection around the vent for lice or mites is recommended.
MITES & LICE

- While naturally occurring, external parasites are generally not a major problem. Most flocks will have some level of exposure with little ill effect.
- Unsanitary coop conditions and wild bird exposure are the most common causes of transmission.
- The easiest treatment for mites is a dust bath.
Endoparasites - a parasite that lives and feeds inside the host animal

- Nematodes or roundworms, are elongated, cylindrical, unsegmented endoparasites. There are many species of roundworms, each tending to infect a specific area of the gastrointestinal tract.

- Tapeworms (cestodes) are white or yellowish ribbon-like segmented flat worms. They vary in size from 0.17 to 12 inches in length. Although tapeworms do not produce extensive lesions or damage to the intestines, they are nutritional competitors.

http://edis.ifas.ufl.edu/ps012

Fecal roundworms

Fecal float test of coccidia

http://edis.ifas.ufl.edu/ps012
Endoparasites - a parasite that lives and feeds inside the host animal

- Make a habit of checking out chicken droppings because some worms are visible in droppings.
- Even if the worms aren’t visible, a veterinarian can examine the droppings in a lab. Sometimes these lab tests aren’t successful, because worm eggs weren’t being produced when the sample was collected.
- Generally, treatment for chicken worms, if required, consists of worming the entire flock.

http://edis.ifas.ufl.edu/ps012
**Endoparasites**

- A few internal parasites don’t cause significant harm and may even be of value to the health of your flock.

- With proper attention to housing, nutrition and insect control parasite infestation can be kept to a minimum.

- Monitor your flock for signs of parasite infestation and identify the parasite likely to be the cause before determining the proper treatment for the most effective control.

- A variety of commercially available anthelmintics will effectively and safely eliminate both nematodes and cestodes.

- **Blanket application of de-wormers is expensive and can contribute to the development of parasite resistance to approved treatments.**

At this time, a few words are appropriate about chicken mortality that is not disease related.

For example, this situation could happen:

- My kid was holding a chick and it just seemed to die in his/her hands. Is this normal? Were they stressed out? Were they sick?
- The avian and mammalian respiratory systems are very different. It is possible to suffocate a bird by holding it too tight.
UNIQUE FEATURE OF BIRDS: AIR SACS
AIR FLOW IN AVIAN LUNGS IS IN ONE DIRECTION ONLY!!
BIRDS DON’T HAVE A DIAPHRAGM

Inspiration

Expiration
More Non-Disease Mortality Factor Examples

- A bag of feed contains a mold toxin
- Birds are curious and can find sources of toxic substances that you may not think are a problem.
- Traumatic events include anything that causes bodily harm to birds, including predators. Injured birds should be isolated from the flock to prevent pecking and ensure adequate feed and water.
- Age-related events such as osteoporosis, tumors, and reproductive problems, e.g., egg binding,

THE BASICS: HEALTH

Disease Killers Of Poultry:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Life Span Reduction Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gumboro (Bursal Disease)</td>
<td>Months</td>
</tr>
<tr>
<td>Coccidiosis</td>
<td>Months</td>
</tr>
<tr>
<td>Fowl Cholera</td>
<td>Weeks</td>
</tr>
<tr>
<td>Infectious Coryza</td>
<td>Hours to days</td>
</tr>
<tr>
<td>Avian Influenza</td>
<td>Days to weeks</td>
</tr>
<tr>
<td>Laringotracheitis</td>
<td>Days</td>
</tr>
<tr>
<td>Marek’s Disease</td>
<td>Weeks</td>
</tr>
<tr>
<td>Newcastle</td>
<td>Days to weeks</td>
</tr>
<tr>
<td>Mycoplasmosis</td>
<td>Hours to days</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>Weeks</td>
</tr>
<tr>
<td>Avian Tuberculosis</td>
<td>Years</td>
</tr>
</tbody>
</table>
THE BASICS: HEALTH

Recognizing Common Poultry Diseases: Examples

- **Coccidiosis**
  - intestinal parasite.
  - symptoms: weight loss; huddling; blood in feces; mortality in young; unthrifty.

- **Fowl Pox**
  - viral disease
  - spread by mosquitoes & direct contact
  - symptoms: blisters; scabs; skin growths; difficult breathing and swallowing; growth in mouth; death is rare; typically recover
Drug and antibiotic treatments may be limited and/or unavailable

Most vaccines are given early in life
+ 18 days of incubation
+ Day 1
THE BASICS: EGG PRODUCTION

**Why have my hens stopped laying?**

**Identified Factors:**

- **Nutrition**
  - Completely balanced diet
  - Out of feed or water

- **Disease**

- **Age**

- **Management**
  - Heat
  - Overcrowding
  - Light

http://edis.ifas.ufl.edu/ps029
**Ectoparasite Effects**

**Ectoparasites** - an organism that feeds on the exterior of the body of the host.

**Northern fowl mite**

The northern fowl mite (*Ornithonyssus sylviarum*) is the most common of the poultry mites. Refer to the publication PS-10, ("Common Continuous External Parasites of Poultry"), for information on identification and control of Northern fowl mites. Northern fowl mites are blood suckers and are irritating to poultry. Anemia occurs in heavily parasitized birds, reducing feed efficiency, egg production, and ability to withstand and overcome diseases.

http://www.extension.org/pages/68178/basic-poultry-nutrition
Ectoparasite Effects

- **Mites** – they are blood suckers and are irritating to poultry. Anemia occurs in heavily parasitized birds, reducing feed efficiency, egg production, and ability to withstand and overcome diseases.

- **Lice** - they feed on dry scales, feathers, or scabs on the skin. As lice crawl over the bird, their mouth parts and sharp claws scratch the skin. The constant irritation causes the bird to become nervous and behave abnormally, causing a general unthriftness and unkempt appearance in the bird. Egg production in infested flocks may drop as much as 10%, although some heavy infestations have caused egg production to fall as much as 20%.

http://edis.ifas.ufl.edu/ps029
Endoparasite Effects

- Heavy infestations of endoparasites can cause unthriftiness, poor feed efficiency, poor growth, reduced egg production, and mortality in severe infestations. Infected birds may also be more susceptible to various diseases and stresses.

- **Examples**
  - Nematodes
  - Tapeworms

http://edis.ifas.ufl.edu/ps029
Disease Effects Examples

- **Fowl Pox** - will cause the chickens to have poor growth, poor feed conversion and a precipitous fall in egg production.

- **Coccidiosis** – symptom (e.g., bloody droppings, general droopiness, emaciation, a marked drop in feed consumption, diarrhea) - cause a drop in egg production.

http://edis.ifas.ufl.edu/ps029
CHICKENS 101: THE BASICS

BIOSECURITY
THE BASICS: BIOSECURITY

What is Biosecurity?

- “Bio” = life
- “security” = protection
- “Biosecurity = doing everything you can to keep diseases out of your flock, either accidently or on purpose
- Key to keeping your poultry healthy
**Commercial flocks and small flocks:**

- Use **same techniques** to prevent disease
- **Same diseases** threaten both
THE BASICS: BIOSECURITY

6 Ways to Disease Prevention:

1) Keep your distance
2) Keep it clean
3) Don’t haul disease home
4) Don’t borrow disease from your neighbor
5) Know the warning signs of infectious bird diseases
6) Report sick birds
THE BASICS: BIOSECURITY

Steps to Effective Disease Prevention:

1) **Keep your distance**
   - Restrict access to your property & birds
   - Keep clean boots for visitors to use
   - Have a rodent control program

2) **Keep it clean**
   - Keep separate shoes/clothes to wear
   - Wash hands with soap before handling birds
   - Clean cages, feeders on a daily basis
THE BASICS: BIOSECURITY

Steps to Effective Disease Prevention:

3) Don’t haul disease home
   ✓ Disinfect all items from other bird areas
   ✓ Separate new birds for 30 days

4) Don’t borrow disease from your neighbor
   ✓ Don’t share birds, equipment or supplies
   ✓ Disinfect all borrowed equipment
The Basics: Biosecurity

Steps to Effective Disease Prevention:

5) Know the warning signs of infectious bird diseases
   - Sudden increase in bird deaths
   - Drop in egg production

6) Report sick birds
   - Agricultural Extension agent
   - USDA/APHIS office
THE BASICS: BIOSECURITY

FDACS Bureau of Animal Disease Control

- Responsible for administering Florida's animal disease control and eradication programs
- National Poultry Improvement Plan (NPIP)
  - a national, voluntary, free program
  - disease control and prevention strategies are used to improve the poultry and poultry products produced by the participants

1 http://www.freshfromflorida.com/ai/adc/adc_main.shtml
District 4 Office
ATTN: Ken Westerman
Provides free consultation on flock health problems

- (863) 297-3974 Office
- (863) 297-3961 Fax
- (813) 363-4820 Cell
- Kenneth.Westerman@FreshFromFlorida.com
- UF/IFAS Extension Sarasota County Extension
  http://sarasota.ifas.ufl.edu/

- UF/IFAS Solutions for Your Life - Poultry
  http://solutionsforyourlife.ufl.edu/agriculture/livestock/poultry.html
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• Burbaugh, B. Pasture Poultry Systems. UF/IFAS Duval County Extension.
• Butcher, G. 2010. Poultry Disease Prevention and Control for Small Flock Owners. UF/IFAS.
• Chisholm, T., D. Zivnuska, J. Cox, & M. Seipel. Pasture poultry research, Truman State University Ag Science.
• Clark, F.D. Range Production and Bird Health. University of Arkansas Extension Service.
• Clifford, J. 2006. Biosecurity Guide for Poultry and Bird Owners. USDA APHIS.
• Damron, B. & D. Sloan. Small Poultry Flock Nutrition.
• Jacob, J. and T. Pescatore. Selecting the right chicken breed. Kentucky Cooperative Extension Service.
• Miles, R. Small scale production and egg production. Animal Science Department. University of Florida.
• Wiggins, L. Chicken Embryology. 4H School Enrichment Program. UF/IFAS Taylor County Extension.
• UF/IFAS Alachua County Extension. Small Scale Poultry Production.
• American Livestock Breeds Conservancy - http://albc-usa.org/
• Backyard Chickens - http://www.backyardchickens.com/
• Build A Chicken Coop Easy: How to Build a Chicken Coop - http://www.buildachickencoopeasy.com/
• 4 H Virtual Farm – Poultry - http://www.sites.ext.vt.edu/virtualfarm/poultry/poultry.html
• Heritage Poultry Conservancy - http://www.heritagepoultry.org/
• The City Chicken.com – http://home.centurytel.net/thecitychicken/index.html
THANK YOU