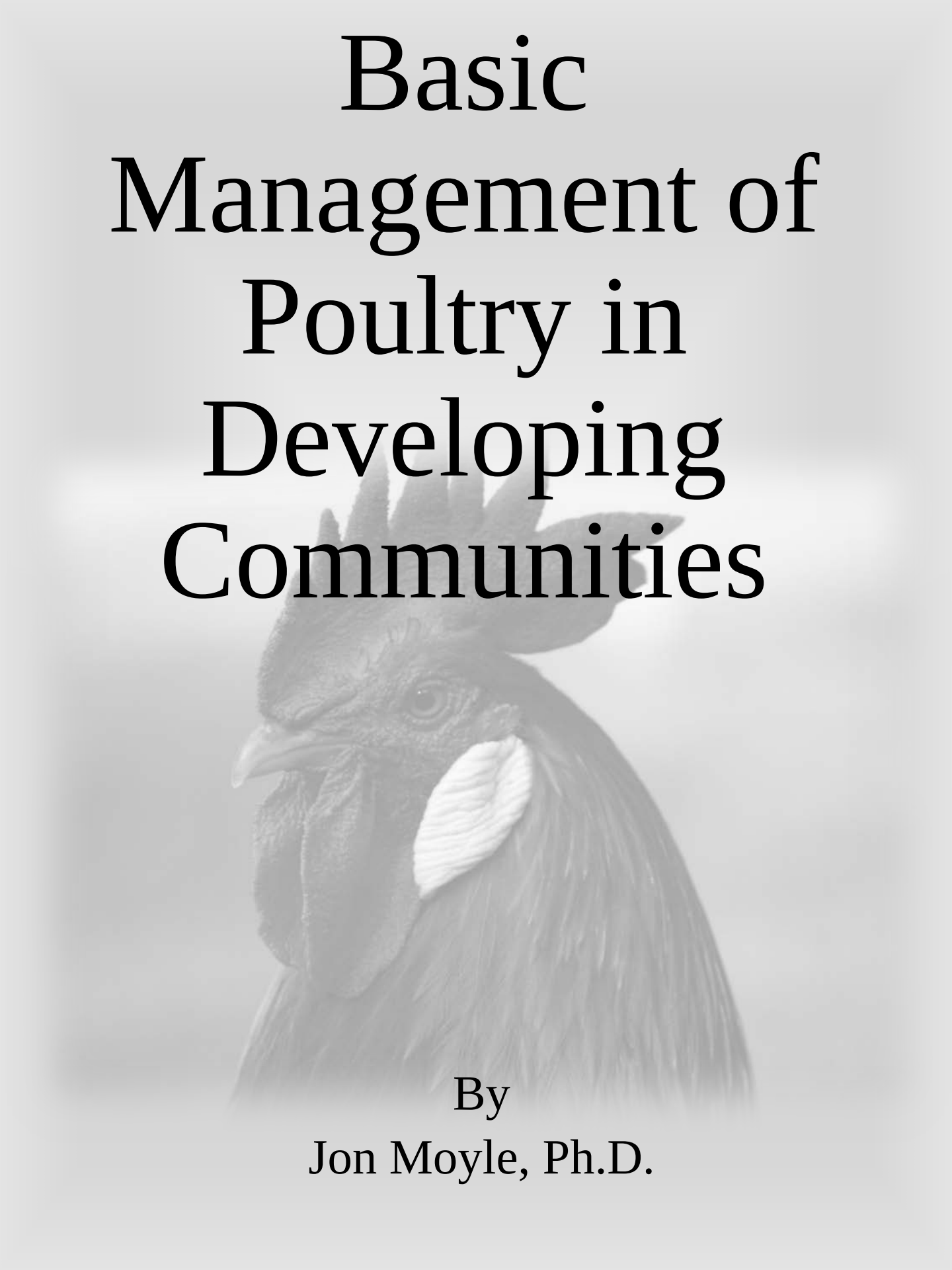
Basic Management of Poultry in Developing Communities



By
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Modern Poultry

There is an estimated rolling stock of 19 billion chickens in the world (not sure if this includes village chickens)

There are an estimated 4.93 billion egg-laying hens in the world

Global average consumption of eggs is around 8.9kg per person/year

Today's laying hens are capable of producing over 300 eggs per hen per year

- The color of the egg shell does not affect the egg quality
- Eggs shells can be many colors including: white, brown, blue, green and olive

Common Types of Production in Developing Areas

Scavenging

- Birds are left to fend for themselves
- Local breeds work best

Semi-intensive

- Some control over housing and feed
- Local, modern breeds or a mixture of the two work best

Small/medium scale intensive

- Birds are confined
- Feed is controlled
- Modern or improved breeds work best

Types of Breeds

Production can also be classified by the type of product produced:

Meat

Great at producing meat but not efficient at egg production

Eggs

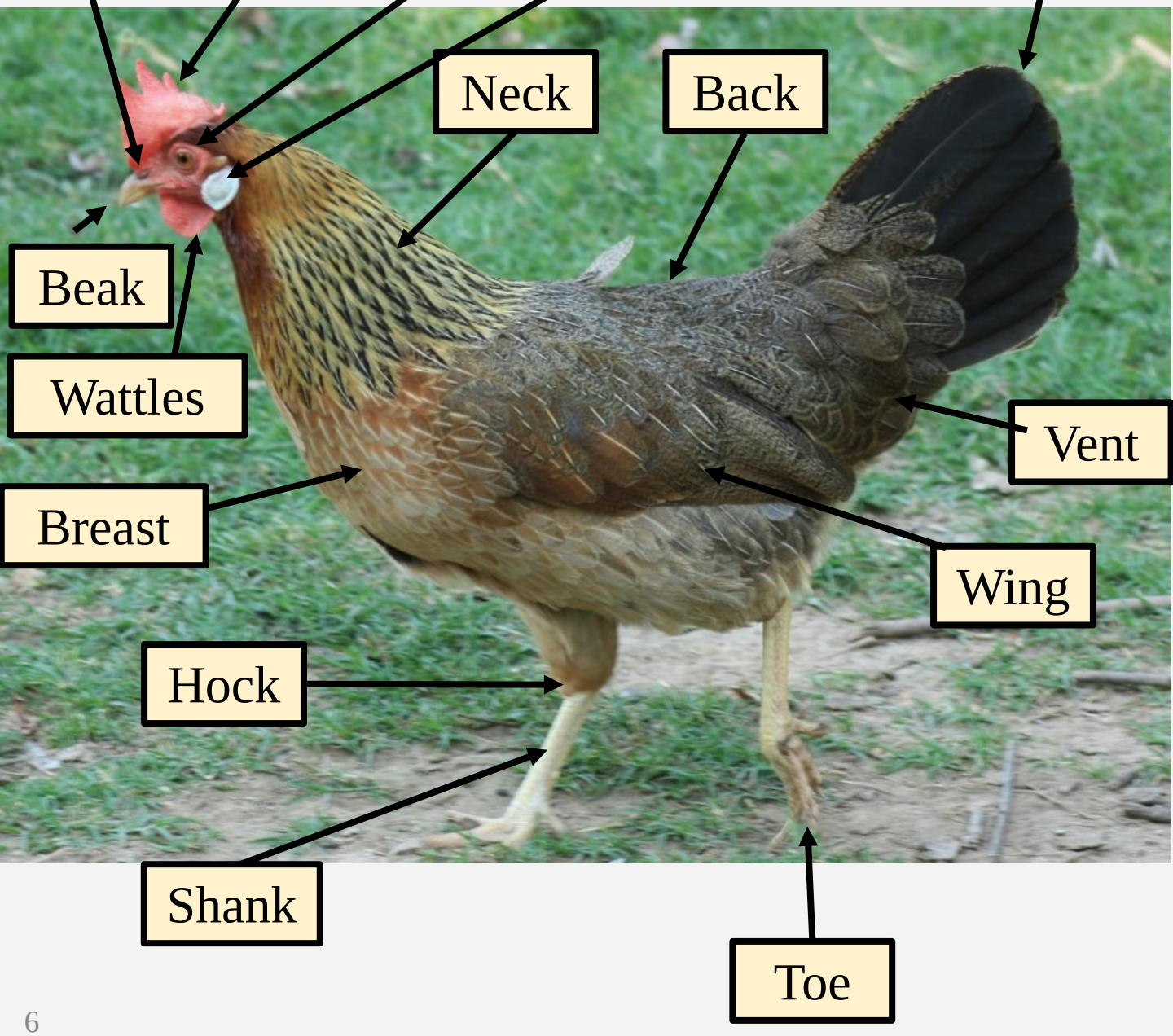
Good egg production but poor meat production

Do not need males to lay eggs

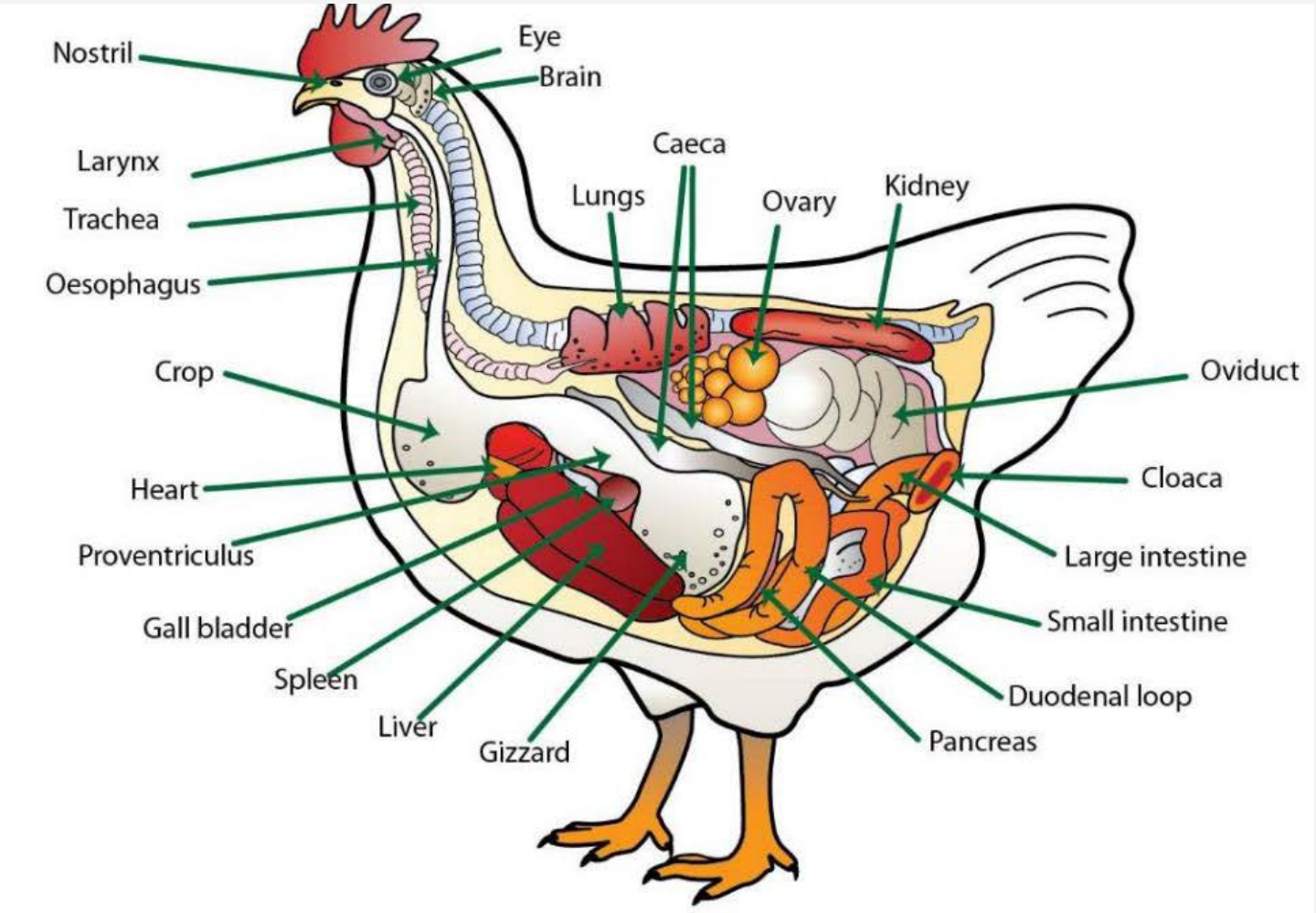
Dual

Produces both meat and eggs but at lower production rates

Basic External Anatomy



Basic Internal Anatomy



http://www.poultryhub.org/physiology/body-systems/digestive-system/

Getting Started

The First Steps

Treat your birds like a business

- Have a plan
  - Why are you increasing production?
  - Do you have a market?
- Keep records
  - This will allow you to see if you make money
  - Helps identify the best birds so they can be used as breeders
    - Only keep productive birds
- Know the source of the birds
  - Buy from a good farmer that takes good care of their birds
  - Are birds vaccinated?
  - Avoid buying birds at the market
    - They can bring a lot of disease to your farm
- Isolate any new birds for 2-3 weeks from the rest of your flock to make sure that they are healthy
- If you get young birds, keep them separate from the older birds
  - Older birds can spread disease to young birds

The First Steps

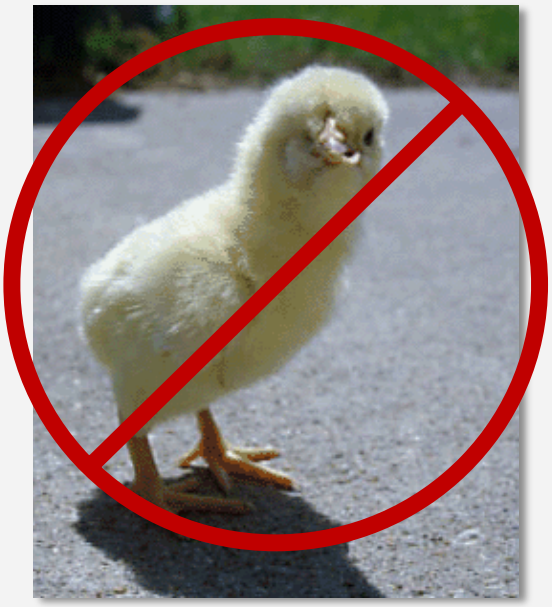
Get the best genetics possible

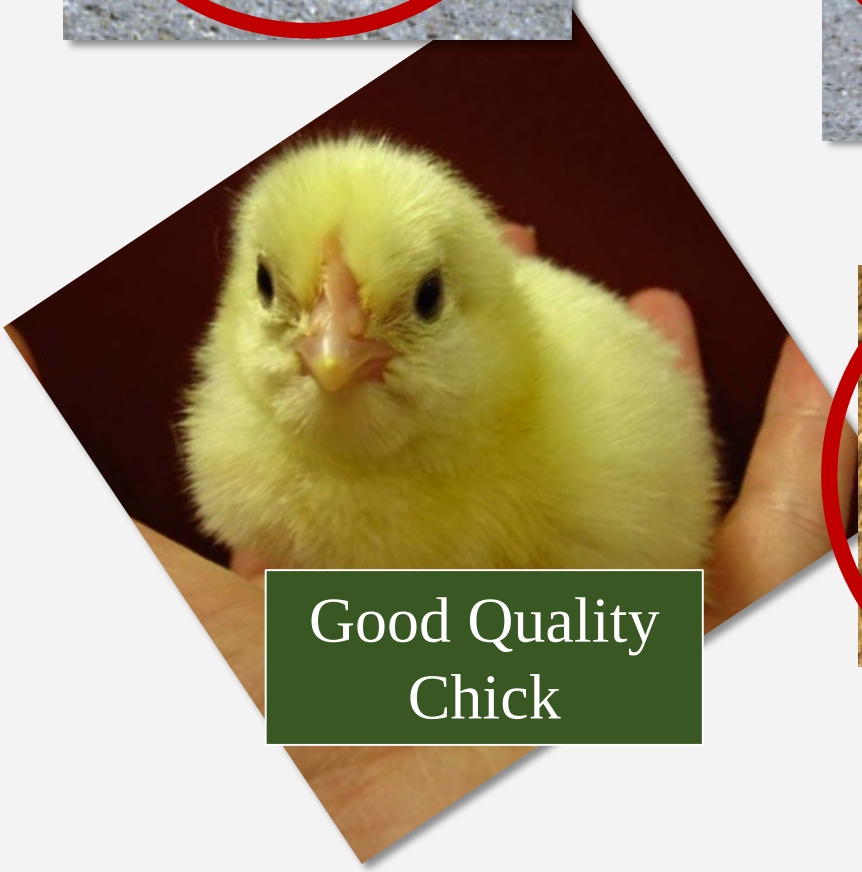
Try different breeds to determine which works best for your area

Try different hatcheries/farmers if the one you are using is not providing quality chicks find a new one

Quality chicks should be:

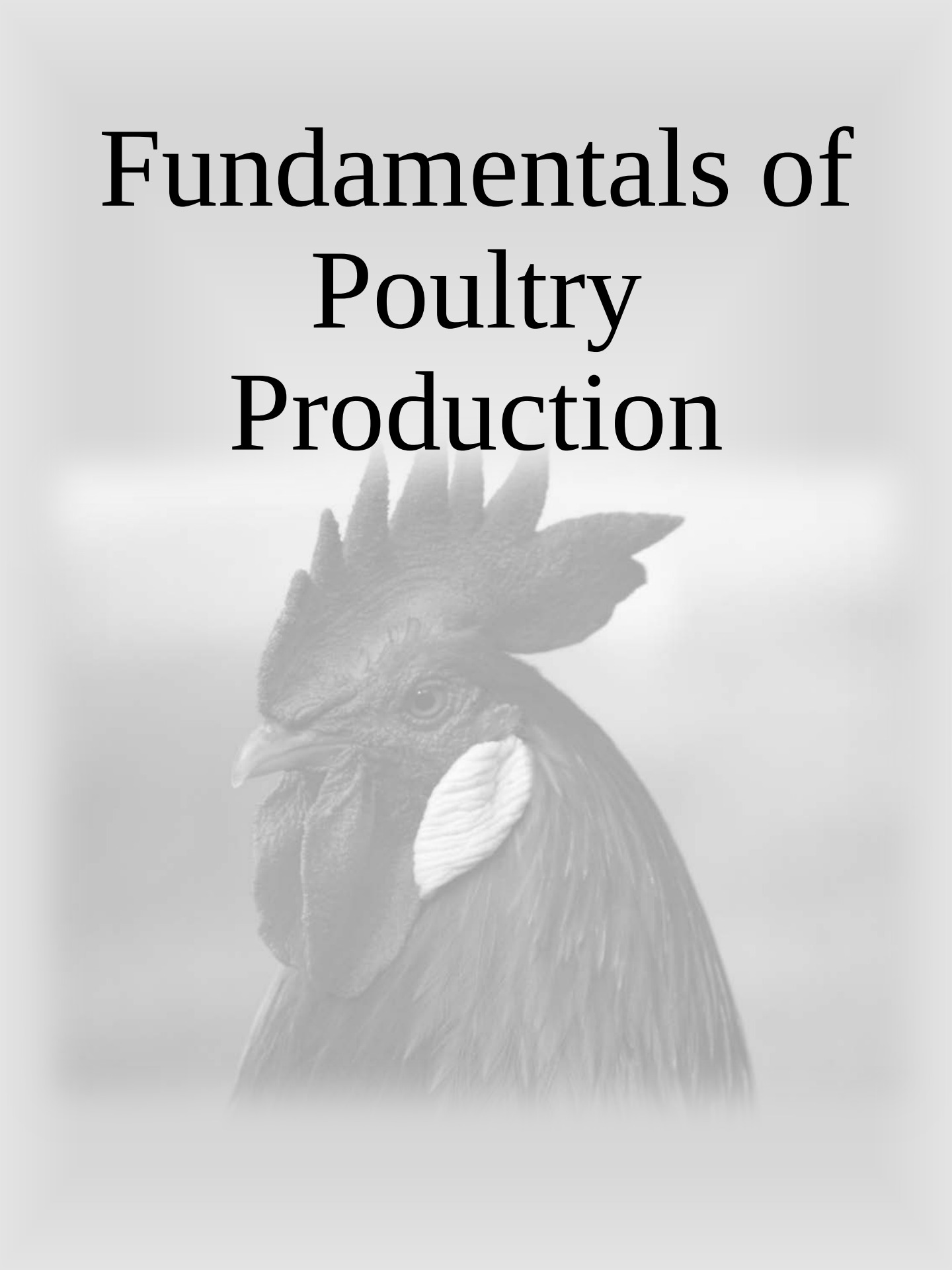
- Dry with long fluffed down
- Eyes should be bright and active
- Lively and alert
- Navels should be completely healed
- Legs should be bright and waxy to the touch
- Free of deformities





Good Quality Chick

Fundamentals of Poultry Production



Getting Started

Chicks require three things to thrive

- Protection (housing)
  - From the environment
  - From predators
- Feed
- Water

Chicks need more protection from the environment than adult birds

The Chicken House

Clean the house and equipment before your chicks arrive

- Scrape and wash the house thoroughly using a good disinfectant, if available
- Old litter can be sold for fertilizer or composted and then used for fertilizer

There are several types of chicken houses

- There is no “perfect” chicken house
- As long as the birds needs are being met then almost anything will do

Houses should be constructed to meet the needs of the birds, allow the caretaker to provide for the birds, and match the environment in which they are in

Housing

In warm areas naturally ventilated houses need to be situated to take advantage of the prevailing winds

Houses should run east-west to prevent direct sunshine on birds

- Tall trees that can shade the house but not block the prevailing winds can help reduce heat stress

Houses need to be far enough apart so that they do not block the wind

Houses used to rear chicks need to be able to block the wind when they are young and then open up for older birds (use adjustable curtains)

Houses need to have a high ceiling

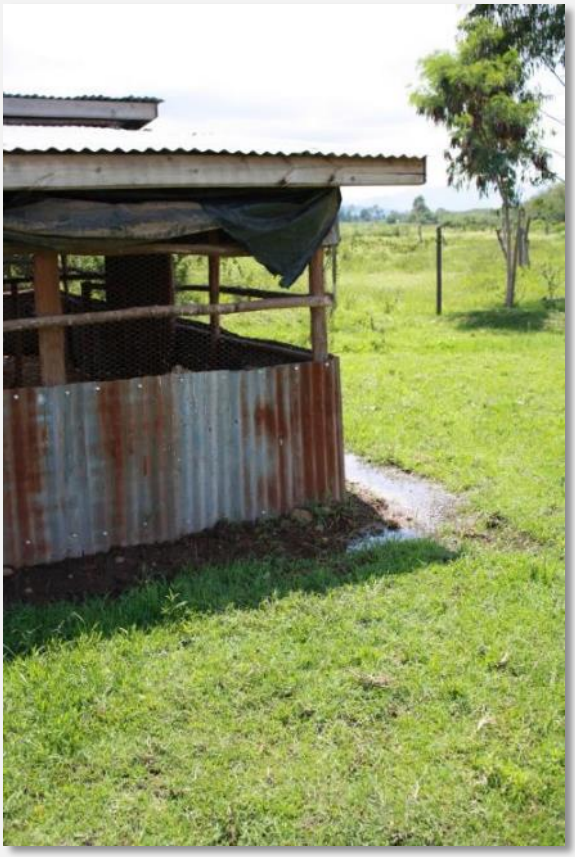
- Houses with low ceilings are hard to work in
- High ceilings also help keep birds cool by allowing hot air to rise

Openings should allow for as much air as possible to enter the house

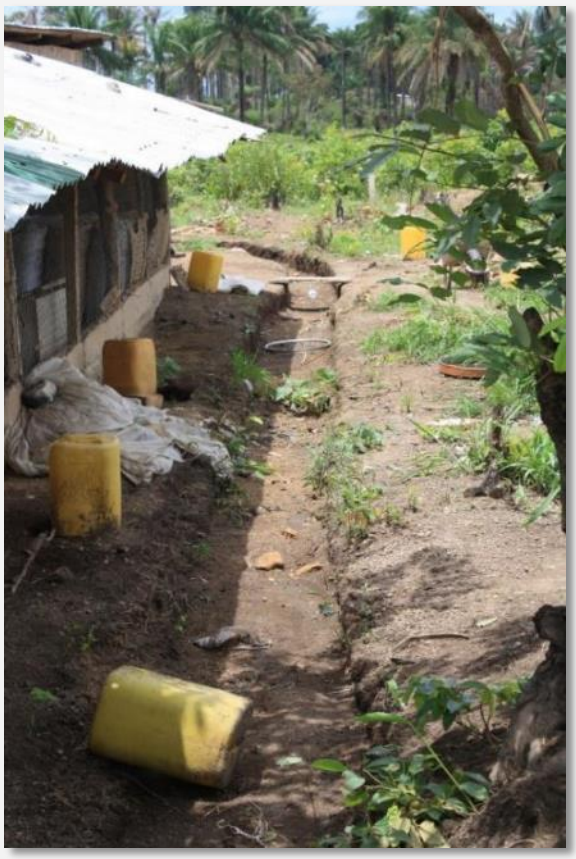
Housing

Extend the roof out from the house so that rain does not enter during storms
Make sure ceiling is high enough that you can work easily in the house
Make sure that water drains rapidly away from the house
Two main types of housing

1. Confinement
2. Free Range



Poor storm water drainage



Good storm water drainage

Confined Housing

Birds are maintained indoors all the time

Place a fence around your chicken house to keep village chickens away from your birds

Free Range Housing

Free range housing allows birds to have access to the outdoors (birds should be over 4 weeks old or be with their mother)

Disease concerns increase when birds have access to the outdoors

Encounter chickens and other species of poultry

They can interact with wild birds

Birds can encounter more predators (including theft by neighbors)

The Chicken House – Bedding

Bedding absorbs moisture, provides insulation, acts as a cushion for the birds, and dilutes feces and minimizes bird/manure contact

Rice Hulls

Pine Shavings

Criteria:

- Must be absorbent
- Lightweight
- Inexpensive
- Non-toxic (free of mold)
- Should lend to post production applications :
  - compost, fertilizer, fuel

Materials such as sawdust, wood shavings, straw, rice hulls and peanut hulls make good litter

Cover the floor with litter 7.5-15cm deep (3 to 6 inches)

Use the best bedding for brooding (young birds)

Use clean bedding in nests and move the old bedding to the floor

Try to keep the litter dry

- If an area gets wet, replace the wet litter with dry litter
- Stir the litter around waterers if it gets wet to help dry the litter

It will not be necessary to clean out and replace the litter until you are ready to start another flock of chicks, even if you start with laying-type chicks and keep the pullets until they are 18 months old or older

Maintain at least 7.5 cm (3 inches) of bedding in the house

Chick Transport

Make sure that chicks are transported properly

- They should have plenty of fresh air
- Not too hot or too cold
- 22 – 28 ^{o}C (70 – 82^{o}F)
- Don’t let them sit in direct sunlight

Make sure that there is room for air to move between the stacks of boxes

Chick Transport

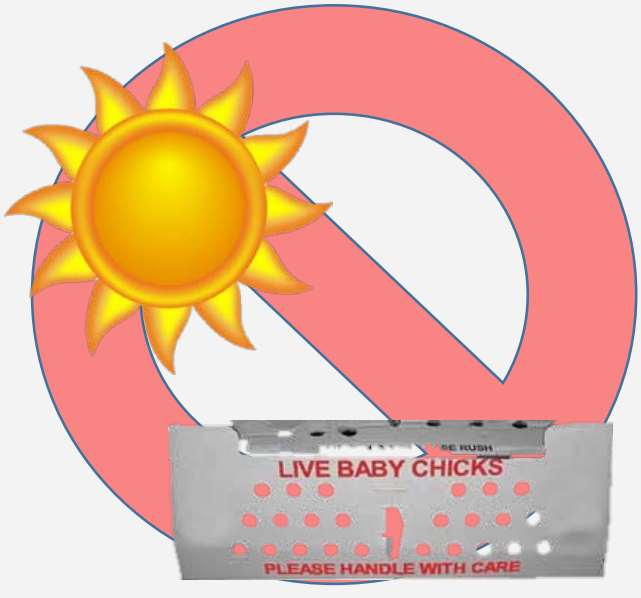
Chick behavior is the best indicator of conditions during transport:

- Under ideal conditions, day old chicks breathe quietly through their nostrils, losing only a little water
- They spread evenly in the boxes, make little noise and are relatively inactive
- When hot, chicks open their beaks and pant, which evaporates water from their lungs and air sacs to help cool them down
  - Leads to dehydrated chicks
  - Chicks will become noisy

Unload the chicks immediately on arrival at the farm

Get them in the house and out of the boxes

Don’t leave old chick boxes laying around the farm



The Chicken House

Before the chicks arrive, make sure everything is prepared

- Litter should be warm and dry (~33ºC)
- Water should be in the house and at a level chicks can find it quickly (as low as possible), use only fresh clean water
- Feed should be easy for the chicks to find and eat
  - Use extra feeders for the first few days

Stocking densities

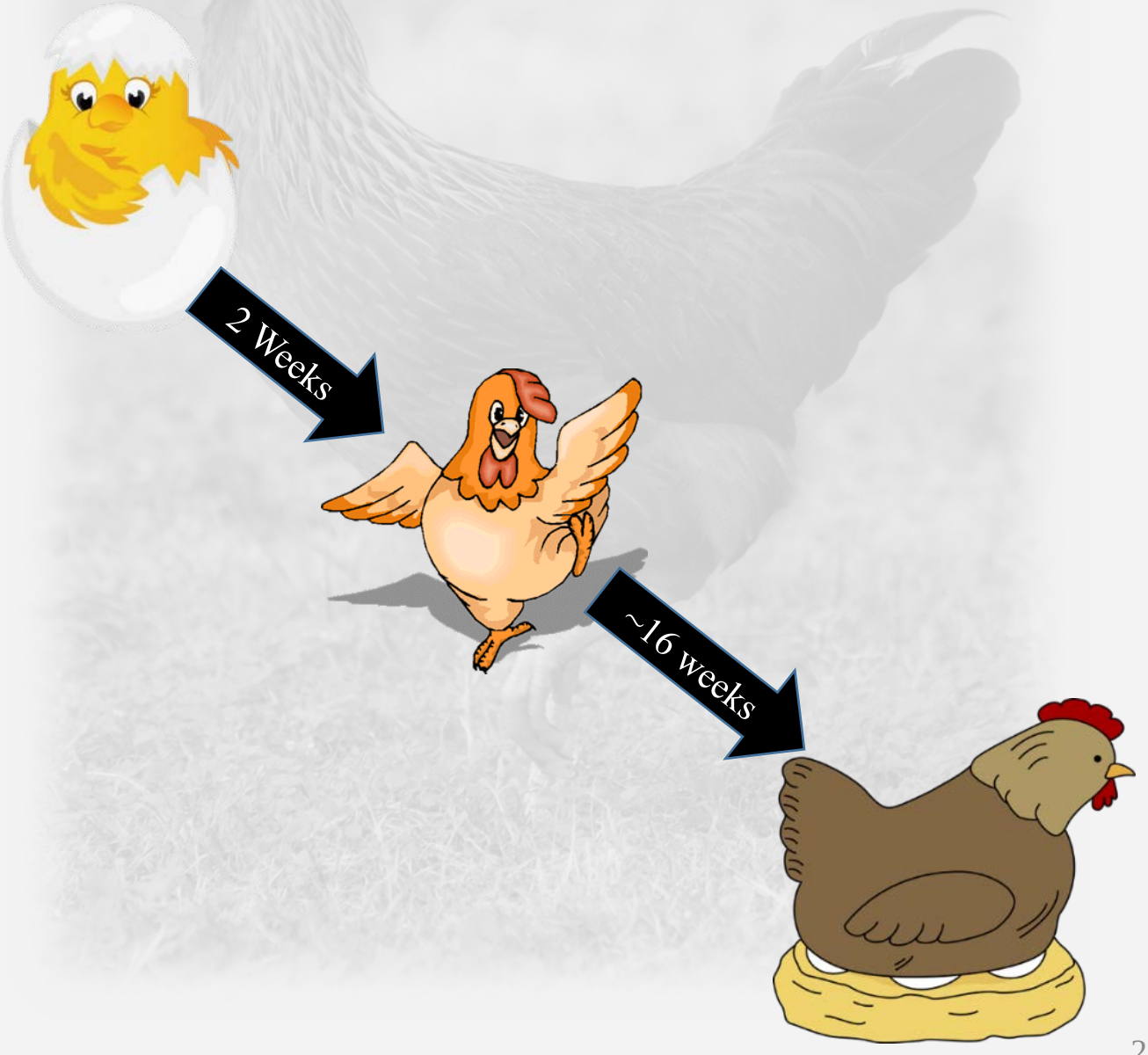
(For birds raised indoors, same for the first 3 weeks)

Age (Weeks)	0 – 2 Weeks	2 – 5 Weeks	6 Weeks-Adult
Birds / m^2	30	20	5*
Birds / f^2	4	1-2	1/2

*Larger birds will need more space that smaller ones

Phases of Growth

Brooding
Growing
Laying



What is Brooding

The time from placement until 14 days of age

Chick survival is dependent on how quickly they adjust to the farm

Most important time for the flock, growers need to spend more time with their birds

Mistakes made during brooding may be irreversible and negatively impact performance for the life of the flock

Similar for all types of birds and types of production

layers, breeders, and broilers

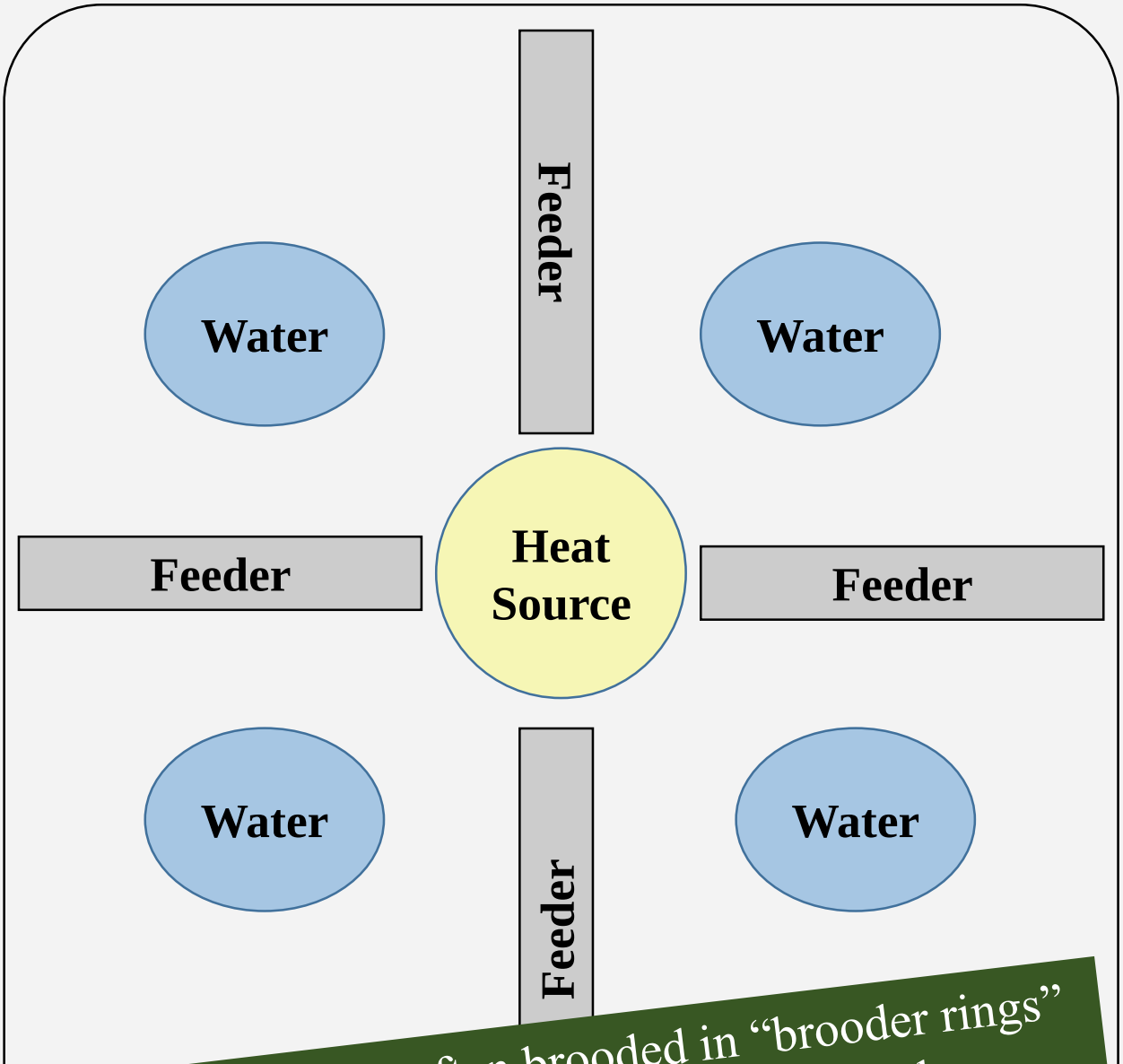
6 Basics of Brooding

1. Pre-Placement
2. Temperature Management (Heat)
3. Feed Management
4. Water Management
5. Light Management
6. Air Quality/Ventilation

Pre-Placement means having everything ready for the birds when they arrive

- House is clean and warm
- Heaters are running
- Feed and water are already and placed in the house for the birds

Example of how to place feed and water (the important part is to have lots of feed and water)



While birds are often brooded in "brooder rings" it is not necessary to use perfect circles Chickens can be brooder in almost any room (or shape) as long as they are protected from the environment

Heat

A quality heat source is necessary in order to keep the chicks warm

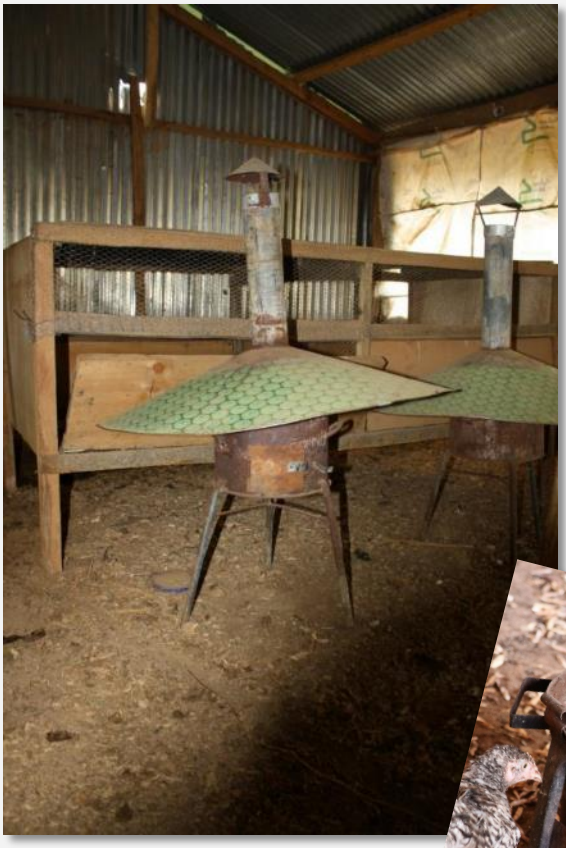
- Under a canopy or hover - keeps the heat down close to the chicks

Electric, oil, and gas brooders are the most common types

Radiation from an infrared lamp warms only the objects to which it is directed; it does not warm the air

Be careful not to let the litter/bedding under the heat source get too hot as it can result in a fire

There are many ways to heat chicks, use what is available



Heat

Temperature at the chick level needs to be around 34º C (94ºF) near the heat source and cooler 1 meter away

Prior to chick arrival – be sure that the heat source is working properly

Are they too hot or too cold?

- Visually check often and check the temperature with a thermometer once in a while
- Check it more frequently in extremely hot or cold weather

When placing the chicks – have the floor-level temperature at 33-34ºC (90-92ºF)for the first couple of days then slowly decrease the temp by around 2.5ºC (5ºF) per week

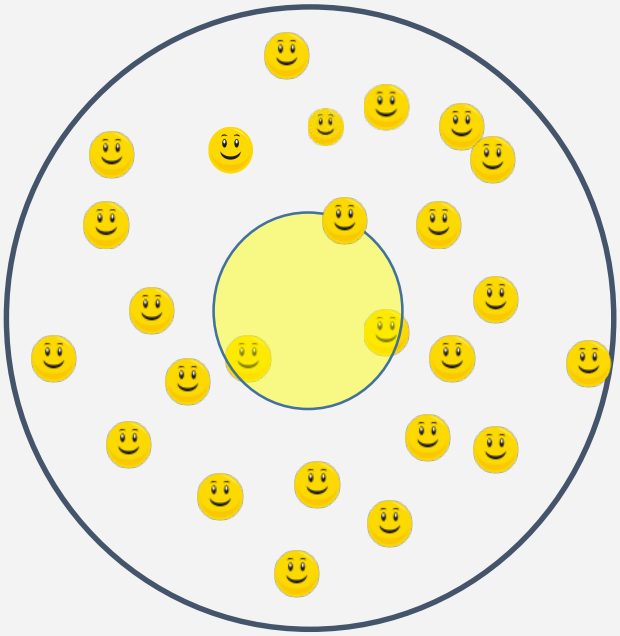
Once the chicks begin to feather out well, the temperature may be dropped rapidly, saving energy

Good ventilation is important while maintaining the proper temperature

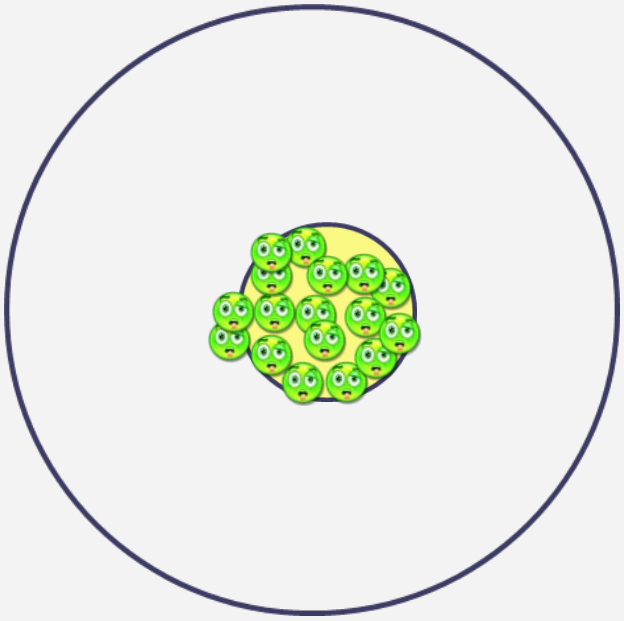
- The area should be light and airy, without drafts
- Free of strong smells of ammonia
- Air should not be too moist
- Air high in moisture can make the inside of the house wet and lead to poor bird health

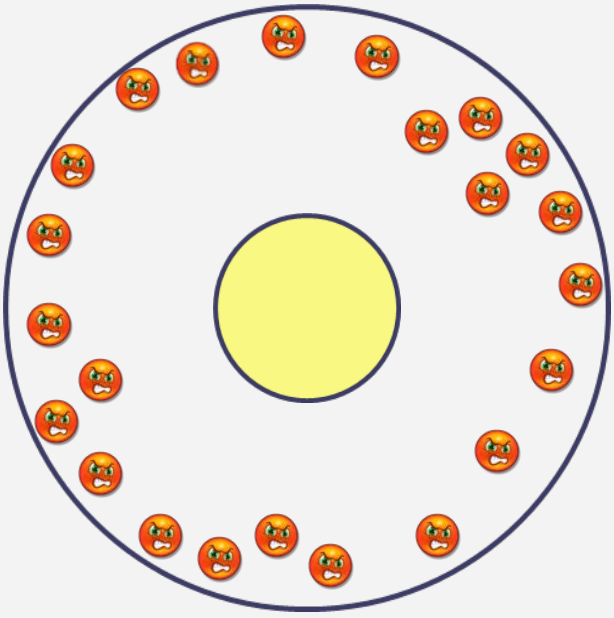
Reference for Brooder Heat

Good

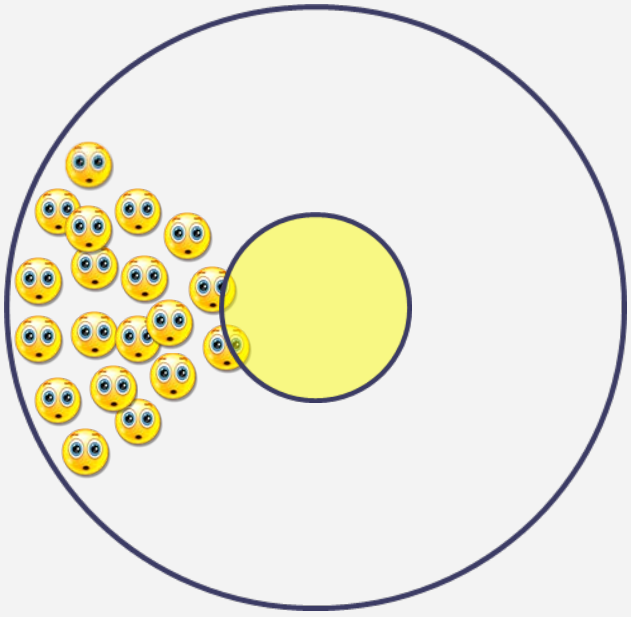


Cold





Hot



Draft/Breeze

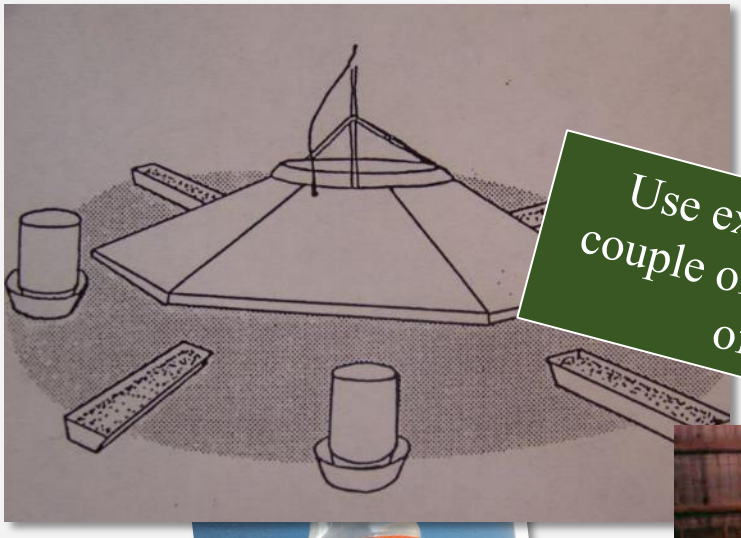
Feed and Water

Feed and water need to be readily available when chicks are placed

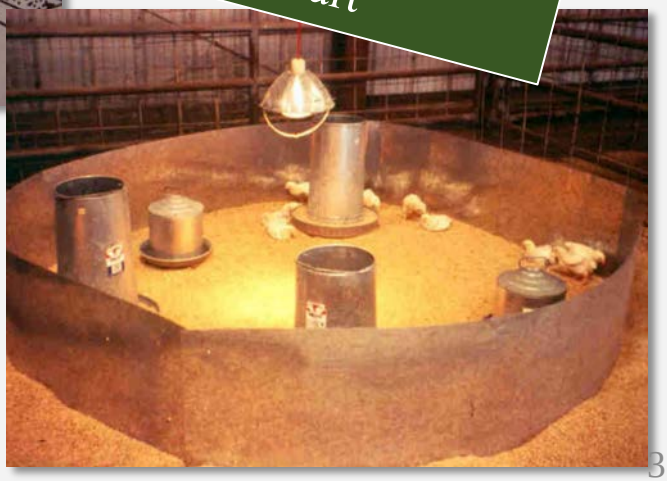
If available start the chicks on a “chick starter” mash or crumbles

Place your feed pans slightly under the heat source

Make sure there are plenty of feeders and waterers so that chicks find them quickly and that there is space for all of them to eat



Use extra feeders for the first couple of days to help chicks get of to a good start



Feed and Water

When placing chicks in the house put them on the feed

For the first week, fill the feeders full

Second week ¾ full and no more than half full thereafter

Keeps birds from wasting feed

Ideally, multiple feeders in each pen is best

You don't want them to have to look for feed

Watch birds eat and make sure all of them have access to feed

When chicks are placed, the feeder needs to be low enough so the chicks can walk in it

As they grow, raise the feeder so that the chicks can eat while standing (mid chest height)

Look at the smaller birds when adjusting the feeder height

Quick Reference Feeder Height

For First week

While Growing

Adult

Feed and Water

Never let chicks run out of water!!!

Waterers need to be cleaned daily

It can be helpful to dip some of the chick's beaks in the water so they know where it is, especially after a hard trip

- If chicks spend more than a day traveling to the farm, provide water for a couple of hours prior to introducing feed
  - This allows the chicks to rehydrate

Waterer Height

For babies as low as you can until they learn to find and drink

Raise the waterers as soon as all birds are drinking

Adjust height based on the smaller birds

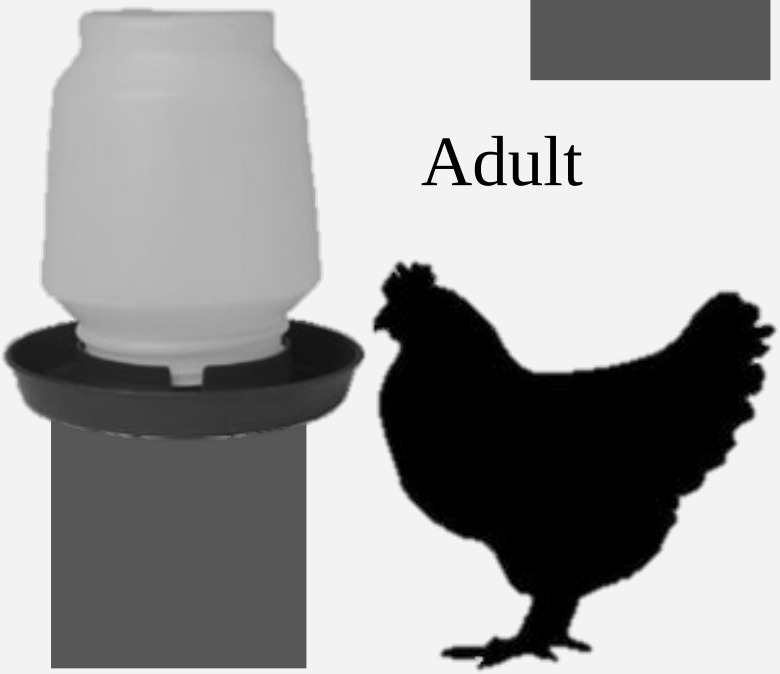
The higher the waterers are, the less litter the birds will get in the water

Quick Reference Water Height

For First week

While Growing

Adult



Waterer Height

For growing birds the waterer should be at the same height as the chest of the birds

For adults the waterer should be at the same height as the back of the hens

Good Examples of Feed and Water Placement

Feed

For the first few weeks, chicks need a good quality starter feed with 18-22% protein (can be fed for the duration of the grow-out)

After that they can be fed a grower ration with ~18% protein until birds are grown

For layers a 16% protein diet should be sufficient

Don’t let birds run out of feed!

- Slows growth
- Need more feed to grow (costs more)

Happy Birds

Hungry Birds

Growing

Growing covers the time from the end of brooding until birds are harvested or are sexually mature

16 weeks

Growing

- Management is not as intensive
  - Birds can manage their body temperature
    - Still need some supplemental heat until they are fully feathered
      - Once grown they can handle cold weather without problems if they can stay dry and out of the wind
    - It is best to keep them confined indoors until they are 4 weeks old
  - Mortality is lower as the chicks know how to find food and water
- For rapid growth, birds should not be allowed to run out of feed
  - Feeder height needs to be adjusted periodically as the birds grow
    - If the feeder is too low they will waste feed
- Make sure that there is sufficient feeder space for all the birds to eat at the same time

Growing

It is important that water be provided at all times

- On hot days, lack of water can quickly lead to death
- Water needs to be clean and fresh
- Birds consume about twice as much water as they do feed

This waterer is too low for adult birds, but good for young

If you have both large and small birds together set feed an water at the correct height for the smallest birds

Prevent Feed Wastage

When starting chicks, have feeders as low as possible

Then slowly raise them as they grow to help prevent debris from getting in feed

The level of feed in the feeder should be high when young and then low when old to prevent feed wastage

Feeders are too low, birds are wasting food

Fix broken or damaged feeders to prevent wasting feed

Perches

Help to keep birds from sitting on feeders and waterers

Helps keep poop out of the feed and water

Can help to improve bone strength

Perches can be made with locally available materials
If using branches, remove bark as it provides a place for parasites to hide

No Perches

The lack of perches results in birds roosting on feeders and waterers and contaminating them with feces

Predators

Little chicks are very vulnerable to predators

The list of predators is long but some to consider include

- Cats and dogs, they may be pets but they can see chicks as food if not properly supervised
- Rats
- Owls and raptors
- Wild animals
  - Weasels, mink, skunks, opossums, bobcats, foxes, coyotes, and even bears will kill and eat chickens

Most predation occurs at night so make sure your chicks are in their house and that it is shut tight to keep them safe

Cover chicks in boxes or feed tanks with poultry wire to protect them

Common Behavior Issues

Sometimes birds behave in abnormal ways

- Egg eating
  - Once learned it can be hard to stop
- Cannibalism
  - Can be a sign that something is wrong
    - Nutrition imbalance
    - Bored
    - Injured birds
  - Beak trimming can be done to help prevent and reduce the problem
- Feather picking
  - Same as cannibalism

Some feather loss is the result of mating, (note feather loss on back as well as the back of the head at the base of the comb)

May need to remove males at times to allow hens to recover, be sure to allow males access to females a couple of times a week to maintain fertility

Reducing the number of males can also help lessen the damage to hens, again make sure there are sufficient males to maintain fertility if eggs are to be hatched

Layers and Breeders

Egg Production/Breeding

The amount of time it takes for chickens to sexually mature varies by the breed

- Usually start laying between 18 and 22 weeks of age
  - Some breeds may start laying as early as 16 weeks
- Lighter breeds usually mature faster than heavier breeds

Feed and water need to be provided at all times

Water is particularly important as it is a major component of the egg

If water is restricted or unavailable for long times during the day, egg production will drop

Housing is the same as growing with the exception of nest boxes

- Need one nest box for every 4-6 hens
  - 12x12x12 is a good size for average size hens
  - Make them a little bigger for large size breeds
- Place in a shaded area to encourage the hens to lay eggs in them

Egg Production

Males are not necessary for hens to lay eggs

- Males are needed for fertile eggs to produce chicks

Takes about 24-27 hours for a hen to form and lay an egg

Hens use calcium from their bones to form the egg shell, this calcium must be replaced by calcium in the diet

- Diets low in calcium reduce egg production and can lead to weak bones in hens
- Calcium can also be supplied by allowing the hens to access oyster shell free choice
  - Can be used instead of grit in layers
- Extended periods of hot weather can also cause bone problems in high producing layers

Lighting Program

24 hours of light is recommended for the first 4 days

20 hours of light for days 4-7

For the second week 16 hours of light

After the second week natural light should be sufficient

Lighting Program (Where There is No Light Control)

Age (Days)	1-4 Days	4-7 Days	8-14 Days	15+ Days
Amount of Light	24 hours	20 hours	16 hours	Natural light

If possible increase day length by 1 hour when birds reach their 18-week body weight target

Housing Layers in Cages

Housing layers in cages allows for:

- More birds to be kept in a small area
- Less exposure to internal parasites
- Less egg loss due to dirty eggs or breakage
- Lower mortality of birds

Bird welfare may be a concern, especially if birds are crowded

Housing Layers in Cages

A bi-level house made of wood and poultry net (wire) and covered with a tarp. Floors are cleaned and the litter is used to grow crops.
Use what you have/can afford

These pens are large and allow the birds more freedom to move and has perches for the birds

Hatching Eggs

Hatching Eggs

It takes 21 days for eggs to hatch, hens that set on eggs and care for young do not lay eggs during that time

- Incubating eggs in an incubator allows hens to continue to lay eggs

Requirements for incubation (embryo growth) are

- Correct temperature ~ (99.5, 98– 100^{o} F)
  - Do not place incubators in direct sunlight as it can cause them to over heat during the day
  - Make sure the incubator is located in a well ventilated room that is protected from the environment
- Correct humidity ~ 55%, or 28.5^{o}C (83^{o}F) wet bulb
  - Make sure water reservoirs are maintained at the appropriate level, in order to maintain the proper level of humidity
- Regular turning of eggs ~ 4-8 x per day
  - After 18 days of incubation the eggs do not need to be turned anymore

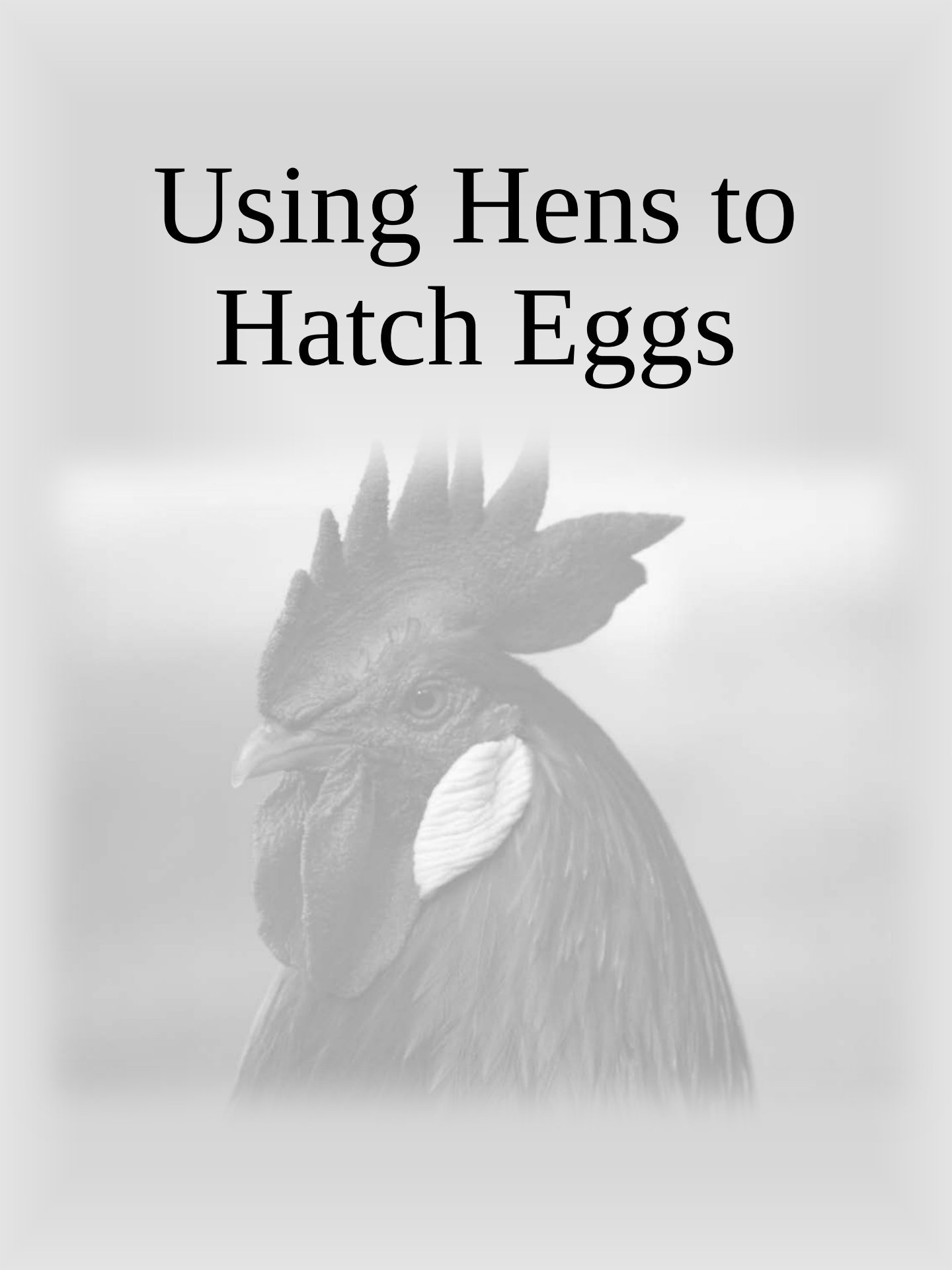
Hatching Eggs

While most incubators operate using electricity, there are some that run on paraffin lamps

- When using this type of incubator it is important to ventilate the exhaust gasses out of the building
- If not properly ventilated, the gasses can build up and kill the developing embryos and lower the number of chicks hatched
- It can also cause health problems for the people living and working there

Example of a paraffin heated incubators

Using Hens to Hatch Eggs



Using Hens to Hatch Eggs

Identify which hens will set on eggs

- Always on the nest
- Fluff up and peck at you when you try and get eggs
- Have a bald patch on their chest

Using Hens to Hatch Eggs

Provide a safe place for them that prevents predators from eating them

Keep food and water close by

Provide adequate ventilation

When chicks are small provide a safe place for them

Keep a fence around the area to keep them safe during the day from predators

At night, lock them in a safe house with their mothers to keep protect them

Make sure food and water are accessible to the chicks when they hatch

Storing Hatching Eggs

Collect eggs 2-3 times a day

Store them with the big end up

Store eggs for hatching in a cool part of the house

- Not too dry or too wet
- 19-21^{o} C is best temperature
  - Avoid temperature fluctuations, keep constant temp
- Do not place in direct sunlight

Only store eggs for 7 days or less before placing them under a hen

Eggs from multiple hens can be placed under the same hen

- This allows you to place eggs that were layed at the same time

Why Some Eggs Don’t Hatch

They were not fertile

They were stored too long or improperly

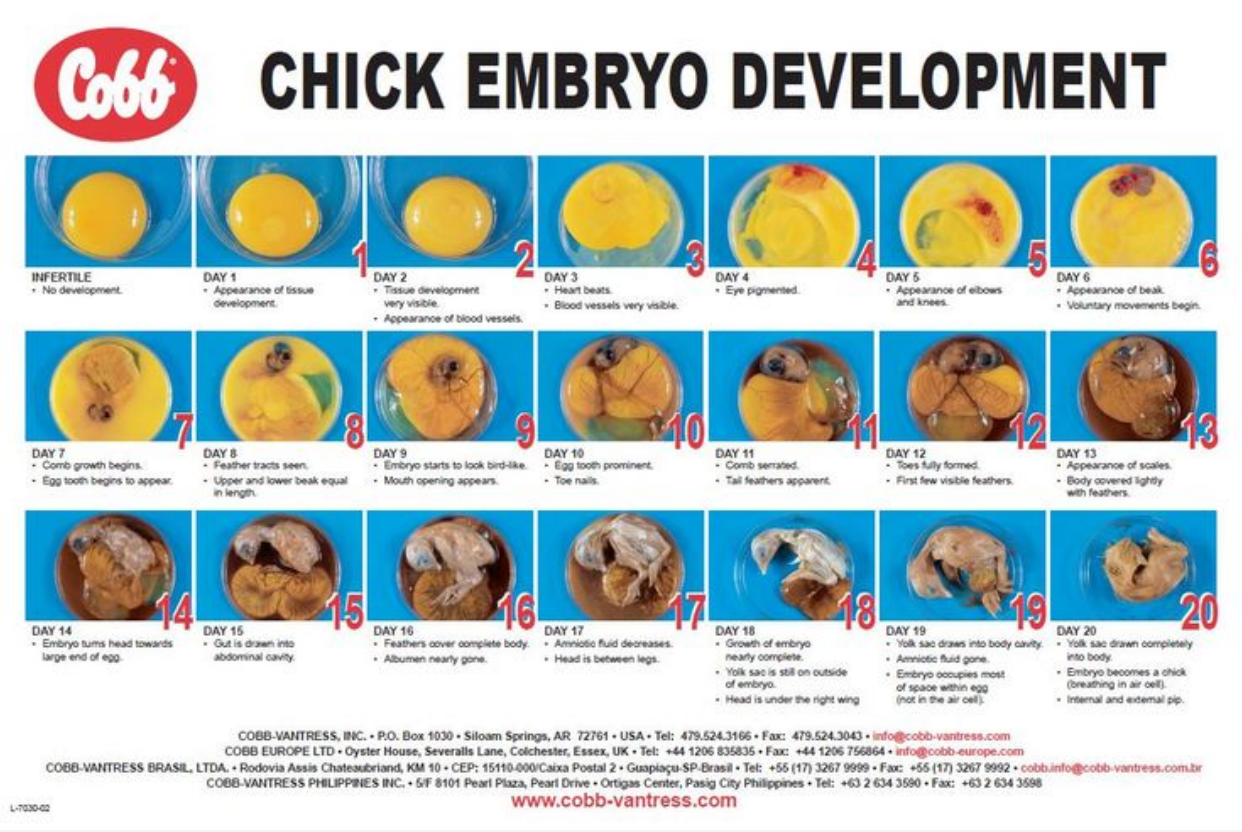
They were dirty, if an egg breaks and covers the other eggs it can prevent the egg from breathing

They get broken

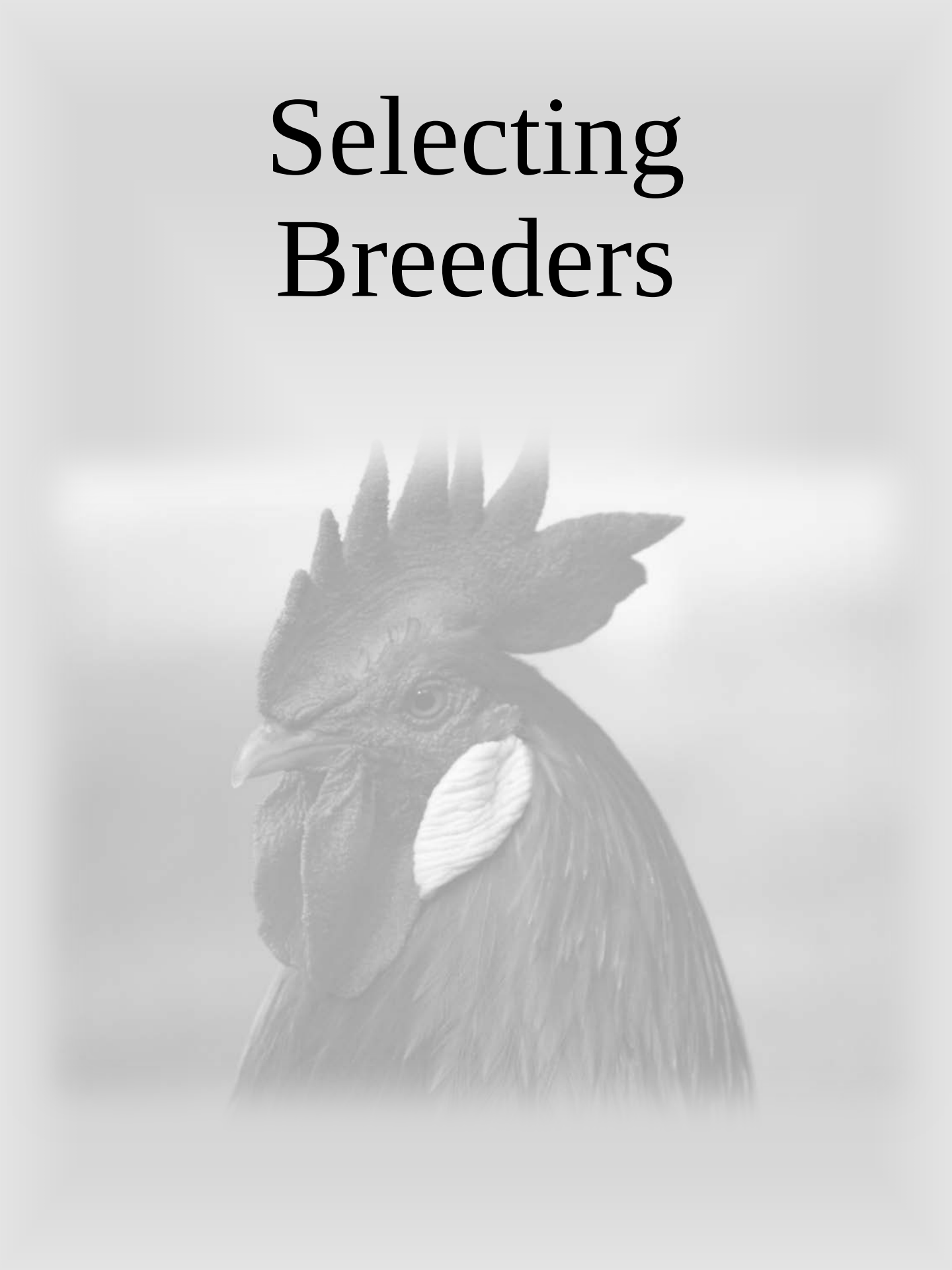
Eggs were stored in direct sunlight

If eggs don’t hatch wait a couple of days and see if they are fertile

- To see if they are fertile carefully open one end of the egg and look for an embryo



Selecting Breeders



Genetics

Body size and rate of production are inherited traits

- For layers – the smaller the hen the more efficient her production – less feed to produce eggs
- For layers – Leghorn type hens and sex-link hens are best for producing lots of eggs using little feed
- Modern meat birds are fast growing and very efficient

Egg laying breed, notice they don't have much muscle

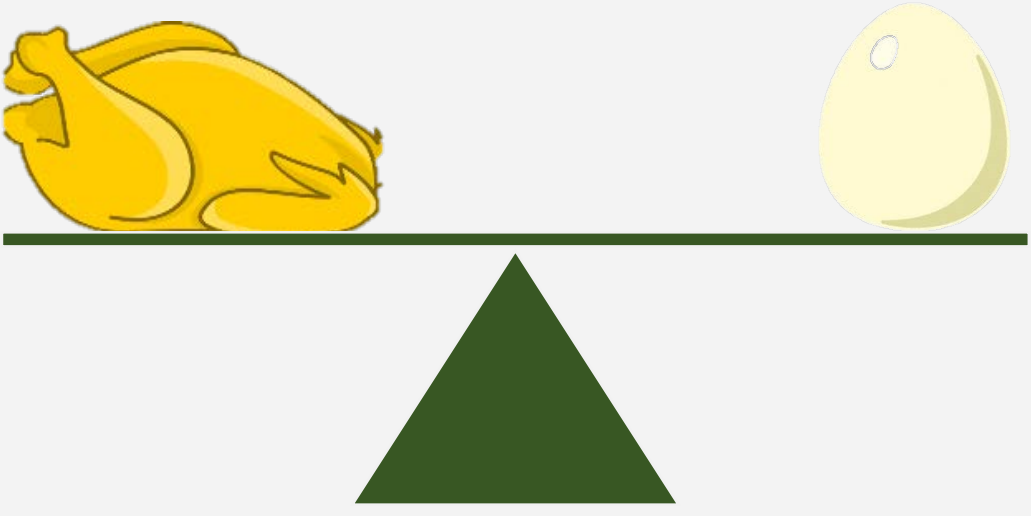
Mixture of modern and local breeds, Birds are the same age and fed the same food, but modern birds are much larger

Poultry Production

Birds are usually selected for either growth (meat) or for eggs

- This is because selection for growth results in a reduction in egg numbers and in efficiency of lay
- Also, if selected for efficient egg production, body size and muscle decrease

Comparison of a modern meat breed to an egg laying breed at three weeks of age, they are fed the same diet and reared in the same facility



Basics

Establish long term goals

Make deliberate mating's that lead to your goal

Keep good records

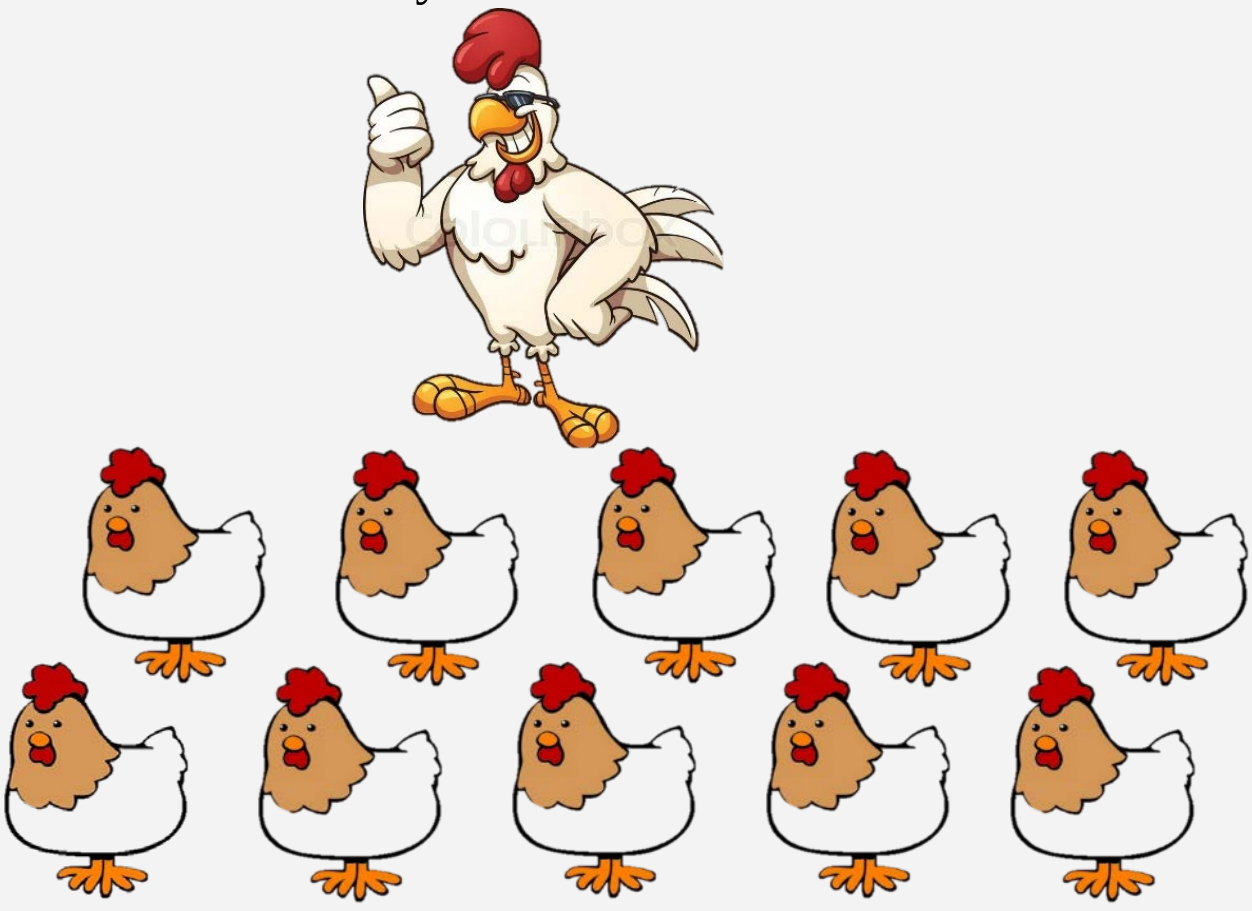
- Keep track of birds
- Keep the best and remove the rest

Select only healthy birds

- Don’t select birds with physical abnormalities

You will only need a few males compared to females

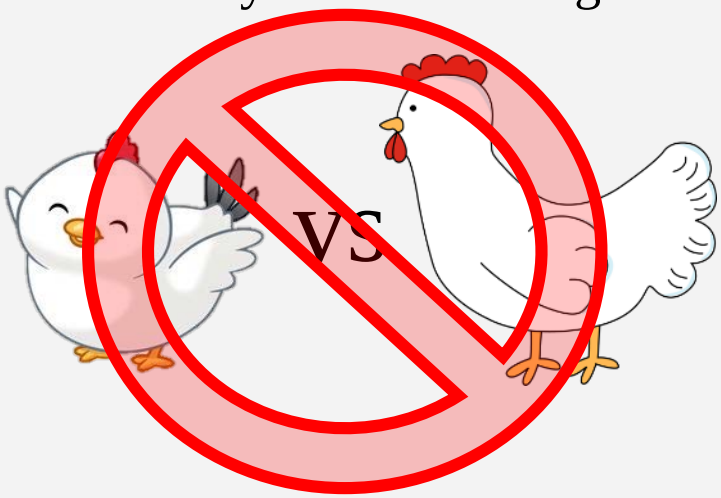
- 1 male for every 10 females



Basics

Always evaluate birds at the same age

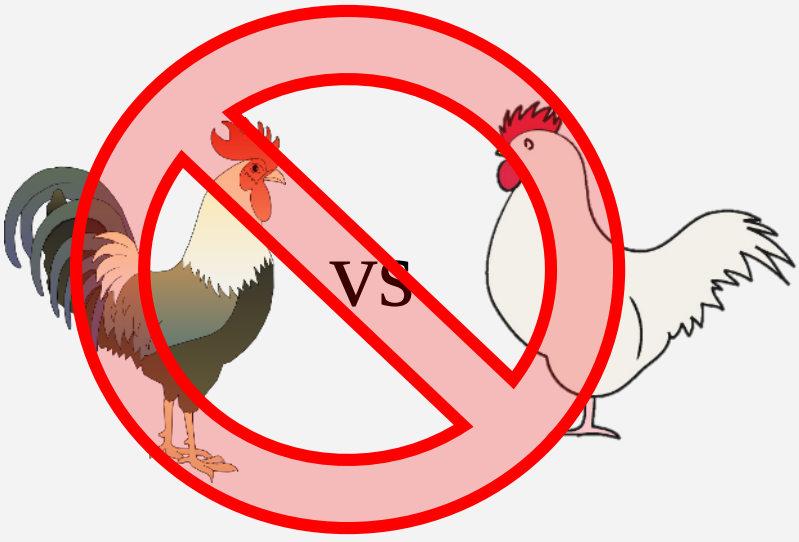
- Don’t compare older birds to younger ones
- Age at selection depends on the breed and production trait you are selecting for



For example, you may want to select meat birds at 12 weeks of age but for egg layers you may want to wait until the start laying eggs

Don’t compare birds of different breeds

- Meat breeds vs egg breeds



Selecting for Meat

Criteria to Measure

Growth rate – weight

Feed conversion

Conformation

Health

Adult size

Growth Rate – Weight

Weight is easy to measure and not subjective

Faster growing birds tend to be more efficient

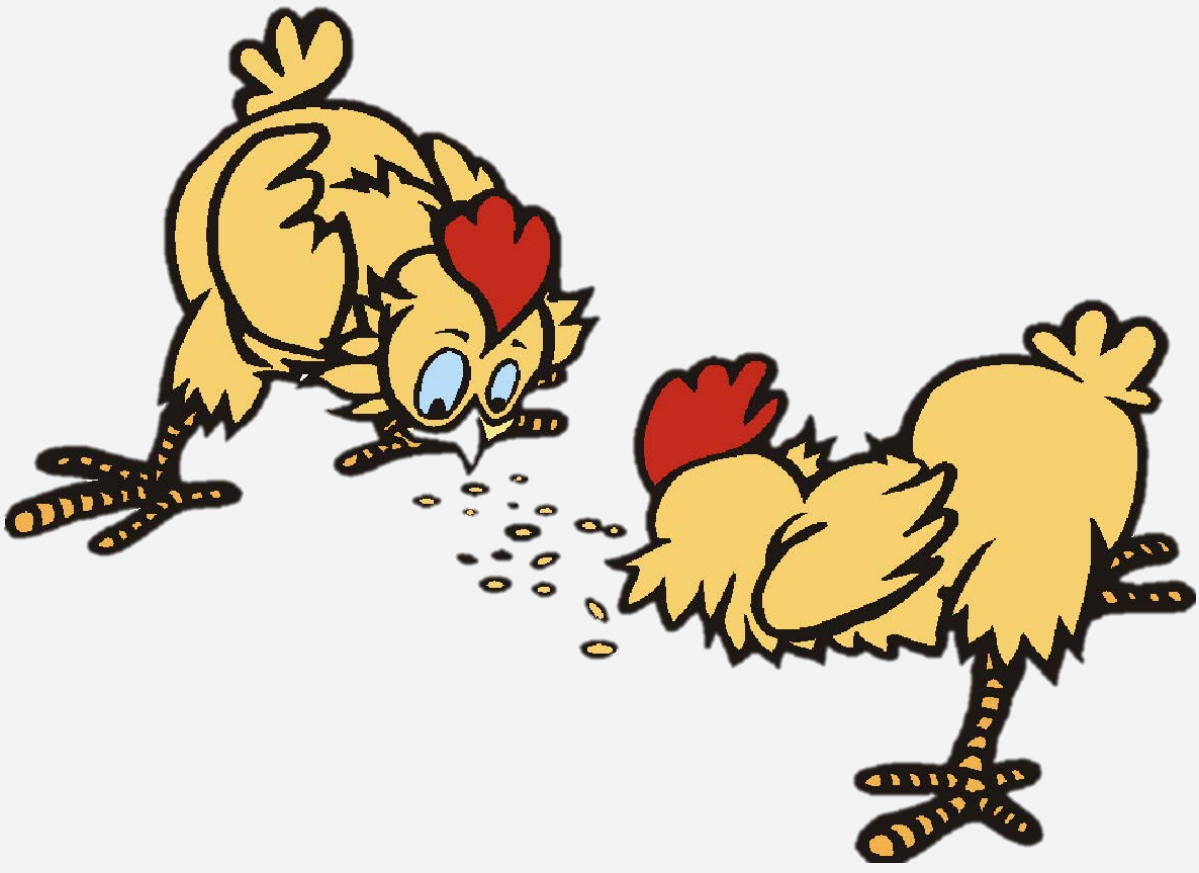
- Check fleshing to make sure growth contains muscle

Always measure at the same age

- Example – 14 and 35 days of age

Appetite affects growth rate

- Birds that eat more will grow faster than birds that eat less
- Select birds that show big appetites



Feed Conversion

This is a measure of how much feed they eat compared to how much weight they gain

- 3kg of feed to get a 1kg bird = 3 to 1 feed conversion

Can be done on individuals (very labor consuming) or on groups of birds (usually chicks are grouped by who their parents are, and how old they are)

Conformation

Meat birds need to have a strong frame and large capacity

Look for birds which have

- Long backs
- Deep through the chest
- Thick body
- Look for large feet and thick shanks

Health

Select only birds that are in good health

- Cull (remove) birds that get sick
- Cull birds that are not physically sound

Select birds that have bright red combs without dark tips

- Dark tips can be an indicator of heart trouble

Make sure that they have bright clean eyes

Selecting Layers

Criteria to Measure

Egg production

Conformation

Health

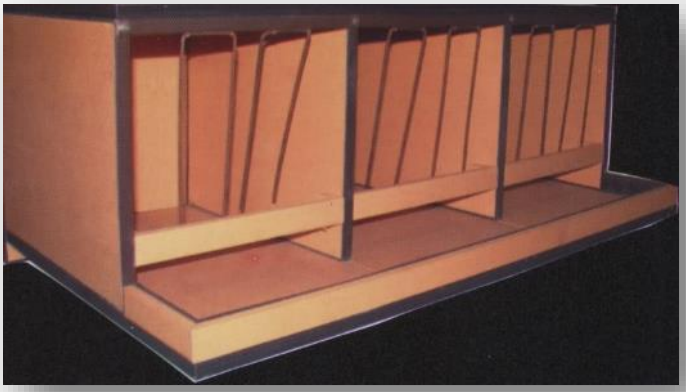
Adult size

Egg Production

Use your best layers for breeders

Measure egg production

Number of eggs laid – use trap nests to monitor each hens production



Trap nests work by preventing the hen from leaving until she is removed by a worker so they can identify which eggs she lays

Select hens that start producing early

Select hens that have long laying cycles, that is, lay eggs many days before they skip a day

Cull hens that molt early

Molt – when hens stop laying and lose their feathers

Select hens that that lay good sized eggs

Cull hens that lay misshapen eggs

Egg Production

Select hens that don't go broody

- Hens don't lay eggs when broody
- Do this only if you have an incubator to incubate eggs, or will be using other hens to hatch the eggs for you

Conformation

Layers need sufficient capacity to maintain high egg production

Look for birds which are

- Long
- Deep
- Thick
- Good abdominal capacity
  - Measure between the keel and pubic bones

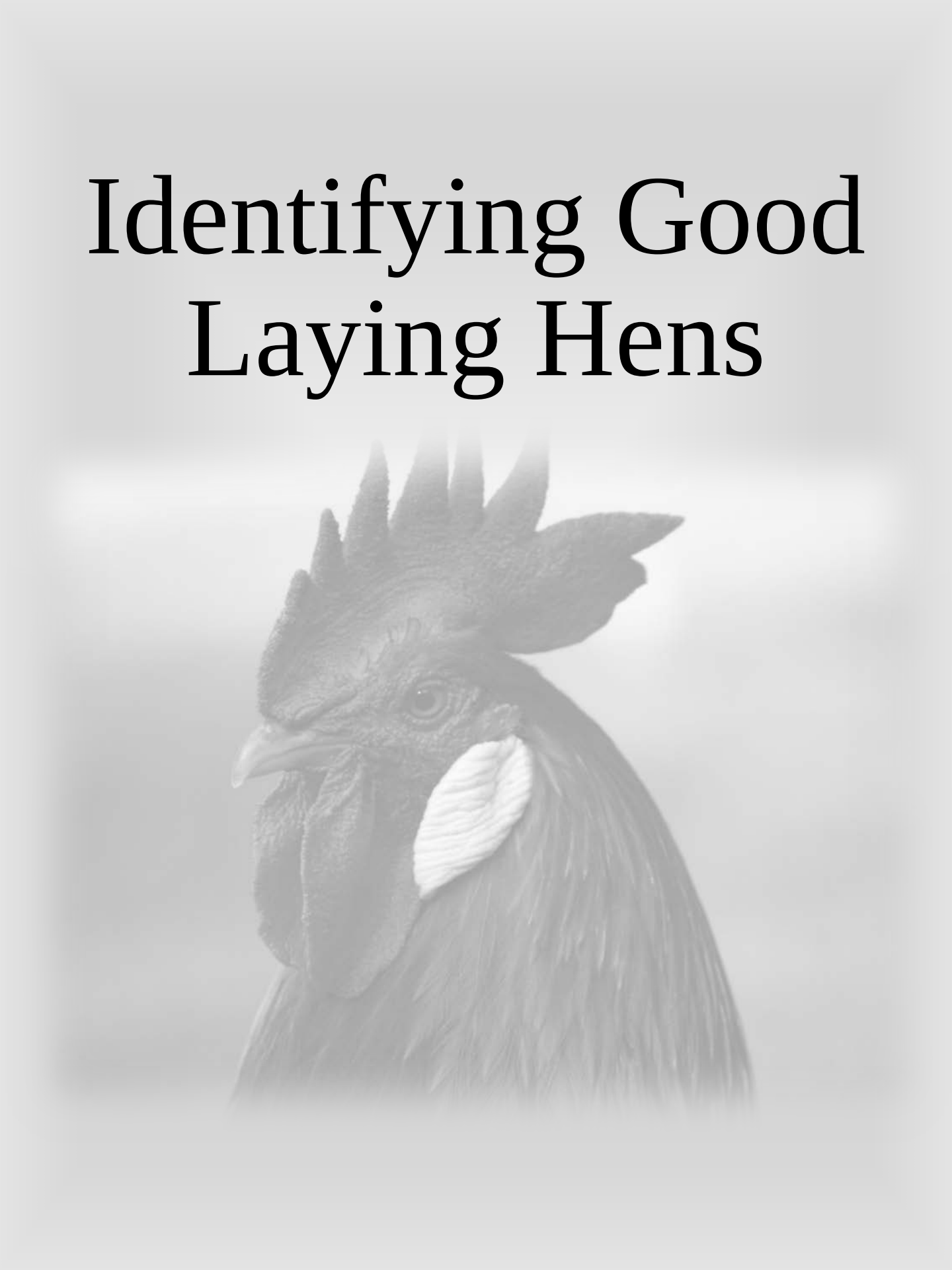
Health

Select only birds that are in good health

- Cull birds that get sick

Make sure they have bright clean eyes

Identifying Good Laying Hens



What to Look For in a Good Laying Hen

Poor Layer

Good Layer

What to Look For in a Good Laying Hen

Poor Layer

Good Layer

What to Look For in a Good Laying Hen

Good Layer

Poor Layer

Note; this only works for birds with yellow legs

What to Look For in a Good Laying Hen

Good Layer

Poor Layer

Note; this only works for birds with yellow legs

Measure how many fingers fit between the pubic bones
If you can't fit 3 or more then she is not laying
More is better

Good Layer

Poor Layer

Measure how many fingers fit between the keel and the pubic bones

If you can't fit 3 or more then she is not laying

More is better, should also be soft not firm

Good Layer

Poor Layer

Feeding Poultry

Water

Water is the most important part of poultry nutrition

Birds need a constant supply of fresh clean water

- Birds cannot lay eggs if they lack water

Use water that you would drink

Dirty water can make birds sick

- Clean waterers regularly

Good

Birds can access water but not make it dirty

Bad

Water is contaminated with feces and litter, waterer is too low and the birds can roost on top of waterer

Ok if chicks are present (clean often)

Why Good Quality Feed?

Better health

More eggs

Birds grow faster

Good Quality Feed

Good quality feed has five nutrients

1. Protein
2. Carbohydrates
3. Fats
4. Minerals
5. Vitamins

Energy

Protein

Protein is one of the most important parts of poultry feed

Protein can be found in

- Beans – Soy beans, cow-peas, mung beans
- Fish meal
- Oil seed cakes – sesame cake, soya cake, cottonseed cake
- Insects
- Leaves of legumes – Leucaena, Cassava, Beans

Energy

Chickens need energy to live, grow and lay eggs

Energy helps birds stay active

Energy comes from two sources

- Carbohydrates (starch)
- Fats & oils

Carbohydrates (starches)

Carbohydrates (starches) are the largest source of energy for chickens

- Maize
- Millet
- Sorghum
- Rice
- Root crops and starchy fruits
- Seeds

Fats and Oils

Most grains have some fats and oils in them

Other sources include oil seed meals

Minerals

Minerals are important for proper bone growth and egg production

Sources of minerals include

- Shells – eggshells, oyster shells, snail shells
- Bone meal – made by heating bones then crushing them up
- Limestone products – lime is a good source of calcium

Vitamins

They are important for body functions

Are found in fresh plant leaves, seeds, and fruits

Protein and Energy Requirement for Layers

Age (weeks)	0-6	6-12	12-18	18 to First Egg	In Egg Production
Crude protein %*	18-20	16-18	15-17	17-18	16-18
Energy kcal/kg	2,850	2,850	2,900	2,900	2,900

*Depends on the quality of the protein

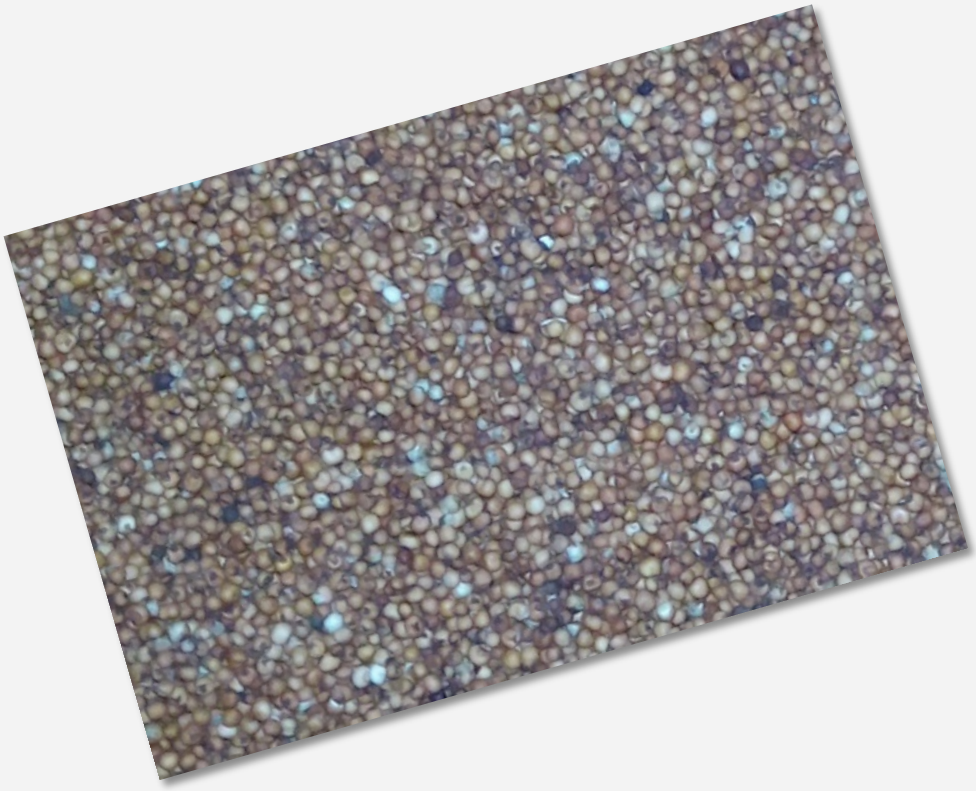
For Layers

3% to 4% Calcium
0.5% Phosphorus
Remember that feed intake decreases as temperatures rise above 32°C (90°F)
May have to increase CP% if outside temps stay above 37°C (98°F)

Protein and Energy Requirement for Meat Birds

Age (weeks)	0-3	3-6	6-8
Crude protein %*	22-23	20-21	18-20
Energy kcal/kg	3,200	3,200	3,200

*Depends on the quality of the protein



Approximate daily feed consumption (grams) per bird

Age (week)	Layer	Broiler
1	10	21
2	15	50
3	20	95
4	25	135
5	30	170
6	40	190
7	45	200
8	50	
9	55	
10	60	
11	65	
12	70	
13	75	
14	80	
15	85	
16	90	
17	100	
18	105	
19	110	
20	120	
21 and up	130	

Approximate daily water consumption (ml) per bird

Age (week)	Layer	Broiler
1		65
2		120
3		180
4	100	245
5		300
6		330
7		400
8		
9		
10		
11		
12	160	
13		
14		
15		
16		
17		
18	200	
19	220	
20	250	
21 and up	270	

Mixing Feeds

Make your own feed
- The most difficult

Buy feed from supplier
- The easiest way but not always the cheapest

Mix homemade feed with purchased feed
- Buy a concentrate and then add you own grains or other energy feedstocks
- Buy feed and make a similar type feed and blend them together to make sure birds are getting all the nutrients that they need

Need to know what you have available and what nutrients they have

Ingredients will need to be processed properly for use
- Remove anti-nutritional properties

Grind/crush large grains and other large feedstocks to that young birds can easily eat them

Mixing Feeds

All of the different nutrients need to be included in the diet or birds will not perform

By using more than one source for each nutrient you get a better feed

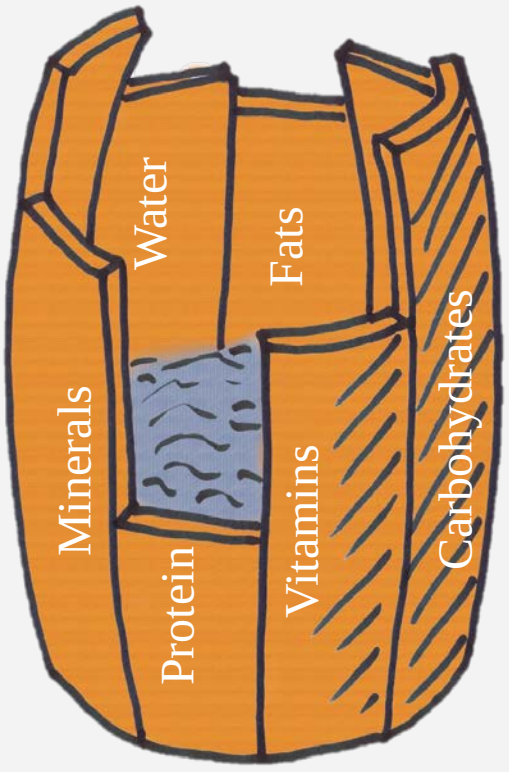
- Helps to make sure all nutrients are available in an adequate amount

Use simple containers to measure and mix feeds

- Feed is only as good as its least supplied nutrient

A very basic feed can be made using 1/3 proteins and 2/3 grains

Use multiple sources of each to get a more balanced diet



Cafeteria Feeding

This type of feeding allows the birds to select what they need

Proteins and grains are fed separately and birds eat what they need

Store Feed Properly

Keep it dry

Keep rodents out

Elevate it off the floor

Use What You Have

- Corn and millet are the best grains to use
- Wheat bran has about 17% protein
  - Can make up 1/3 of the ration
  - High in fiber, which may help with cannibalism
- Rice and rice bran can also be used
  - Lower in protein
  - Polished rice has less vitamins
- Bananas can be used but need to be ripe and they are low in protein limit to 10% of diet
- Sweet potatoes can replace up to 50% of grains in a diet
- Cassava
  - Needs to be dried first
  - Both leaves (up to 5%) and root (up to 40%) can be used
  - Not much protein but provides energy

Proteins

Legumes (beans)

- Must be treated first (heat, sprout)
- Ground nut cake is a good protein but make sure it is free of mold
- Field peas and some green grams (mung beans), can be used without having to treat them first (up to 1/3 of diet)

Fish Meal

- Feed a maximum of 10%
- High levels make eggs taste “fishy”

Meat and bone meal

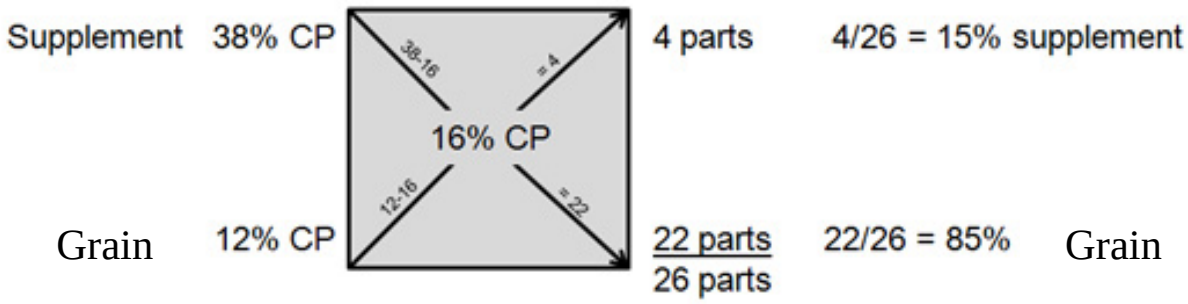
Insects

Palm kernel meal

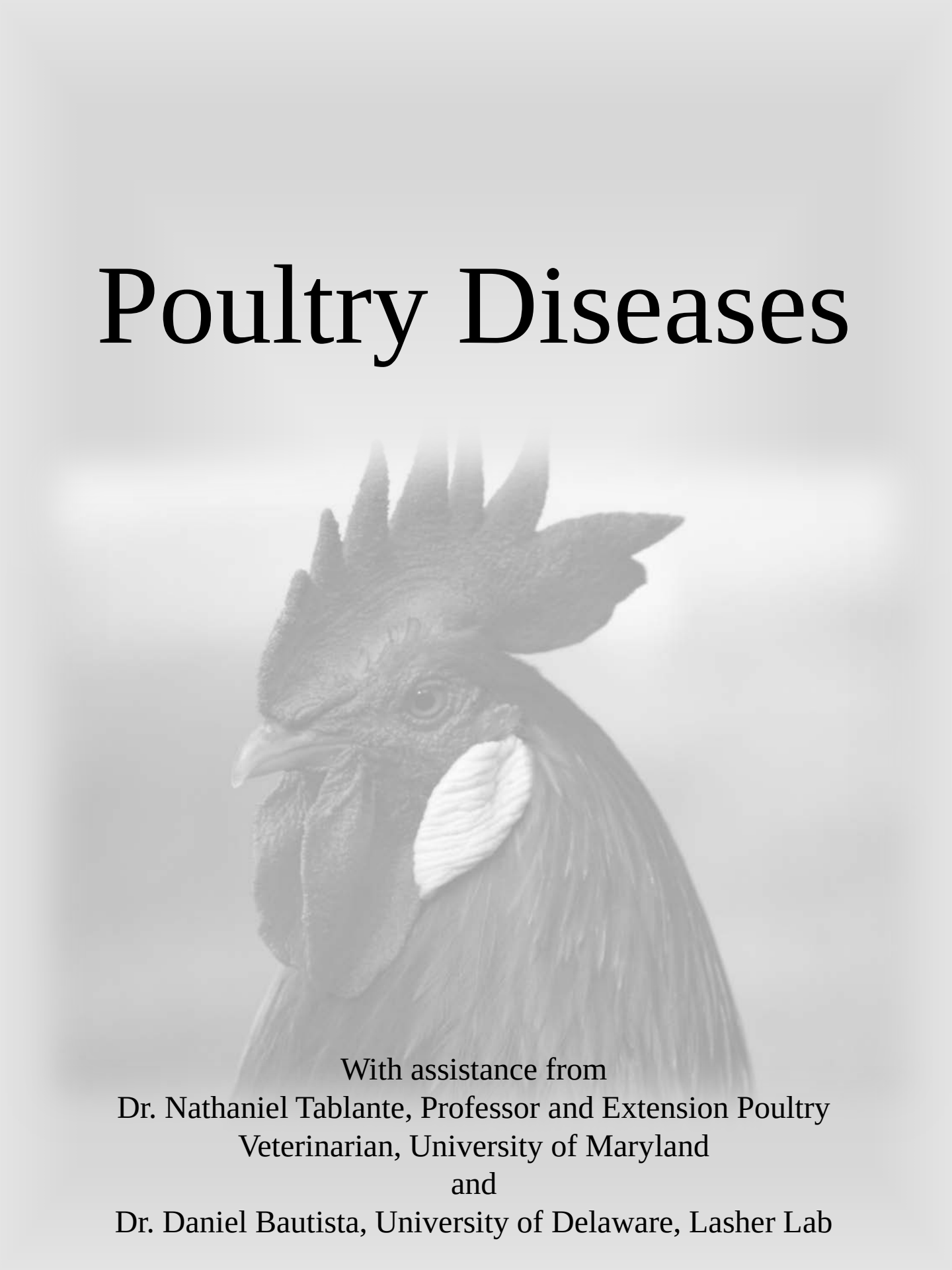
- Can be used as a protein source
- Can be fed up to 25% or ration
- Mix with other source of protein

How to Mix Feeds

Use the Pearson's Square to determine how much of each feed to combine when blending commercial feed with homemade feed



Poultry Diseases



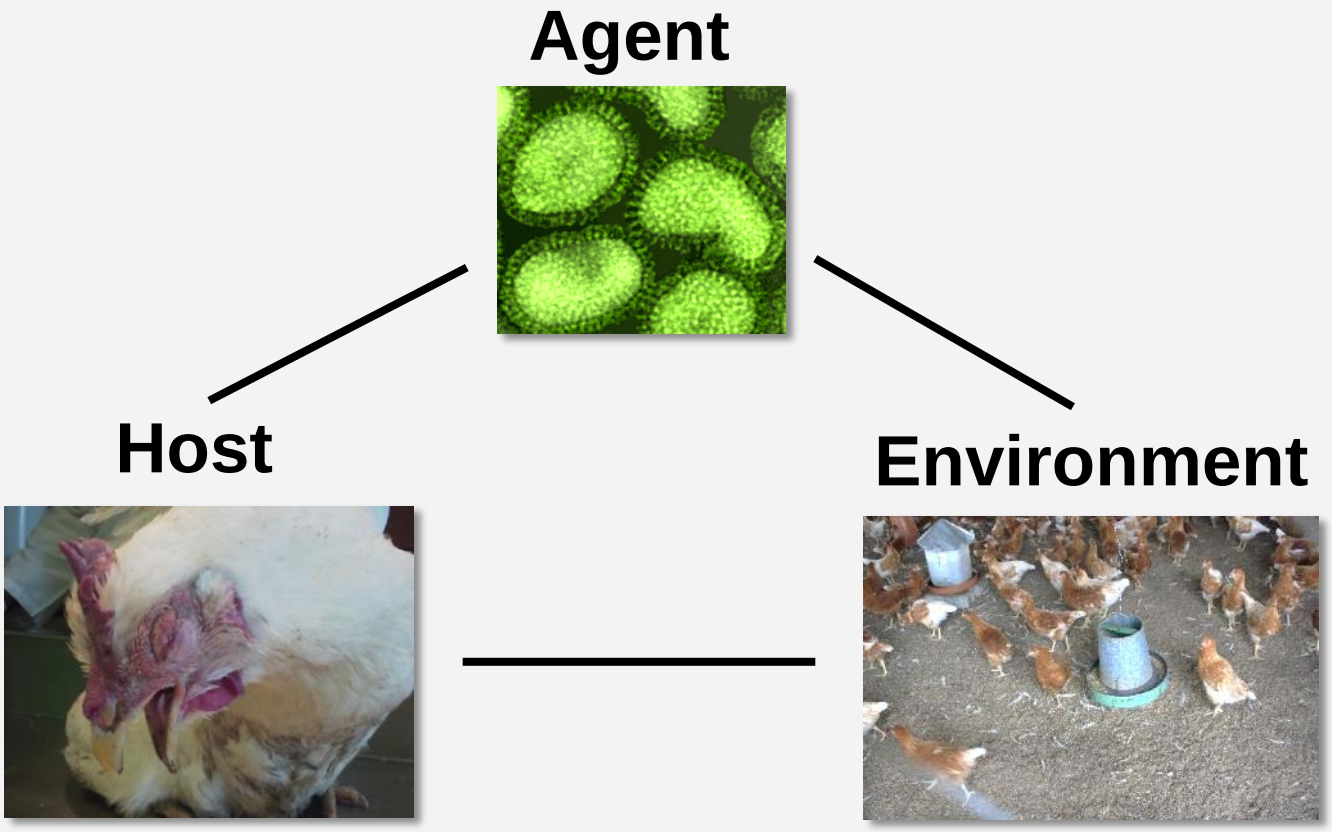
With assistance from
Dr. Nathaniel Tablante, Professor and Extension Poultry Veterinarian, University of Maryland
and
Dr. Daniel Bautista, University of Delaware, Lasher Lab

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:



Not all poultry health and production problems are caused by infectious agents

Many problems can be traced to management factors

Infectious Agents

Bacterial

- Bacteria cause many diseases, but can usually be treated with antibiotics

Viruses

- Viruses cause diseases that can not be treated, therefore, prevention is the only way of protecting your birds
- Vaccines are available to help protect your flock

Parasites

- Most parasites can be treated with conventional medicine (anthelmintics) as well as traditional remedies

Fungus

- No good way to treat fungal infections
- Antibiotics may help

Non-infectious Agents

Chemical

Birds can come in contact with poisons when farms are not kept clean

- Poisons used to kill rodents
- Do not use the chicken house to store farm chemicals

Physical

Injury to the bird

Dietary deficiency

Improper feed formulation or mixing

Toxins

- Molds create toxins that the birds can consume in the feed

Do Not feed moldy feed to your birds!!

Antibiotics only work against bacteria!

What Factors Affect The Host

Breed

Age

Sex

Immune status

Management and Environmental Factors

Weather

- Temperature
- Humidity
- Wind

Season

Geographic location

Housing

All birds need protected from;

- Wind
- Rain
- Direct sunshine (in hot weather)

http://www.rspb.org.uk/community/wildlife/f/2543/t/110087.aspx

Management and Environmental Factors

For best management check for **FLAW**

Feed quality

Lighting program

Air quality and ventilation

Water quality

Space requirements

Sanitation

Vaccination and medication

Management and Environmental Factors

Biosecurity = Any and all procedures used to help protect humans or animals against disease or other harmful biological agents

There are three parts to biosecurity:

- Isolation
- Traffic control
- Sanitation

What To Look For

Some symptoms of disease are:

- Weakness, muscular tremors, drooping wings, twisting of the head and neck, or complete paralysis
- Lameness and tumors
- Swelling around the eyes and in the neck
- Bluish comb and wattles
- Sudden death or an unusual number of birds dying in a flock

Other Symptoms Include

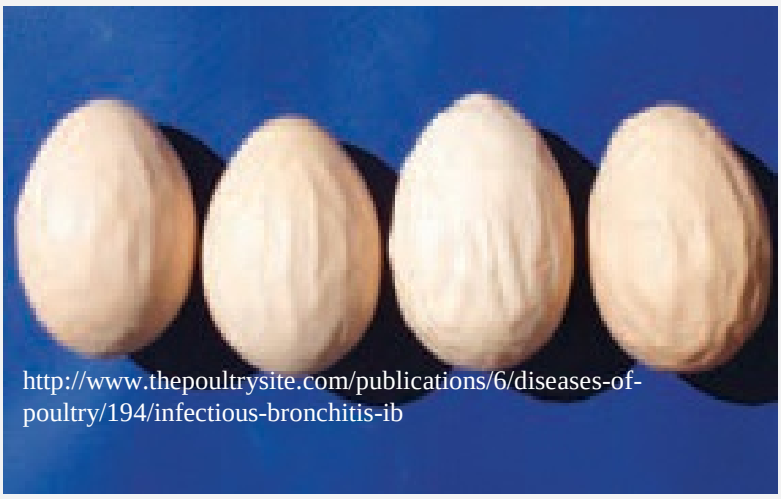
- Loss of production
- Poor appetite
- Huddling
- Depression
- Runting/stunting; poor uniformity
- Ruffled feathers
- Coughing, sneezing, eye-nose discharge, difficulty breathing
- Bloody or wet litter
- Increased mortality

What To Look For

Know what a normal bird looks like

How can you tell if your bird is sick?

Sick birds are inactive, dull and tend to isolate themselves from other healthy birds in the flock



http://www.thepoultrysite.com/publications/6/diseases-of-poultry/194/infectious-bronchitis-ib

What To Look For

What To Look For

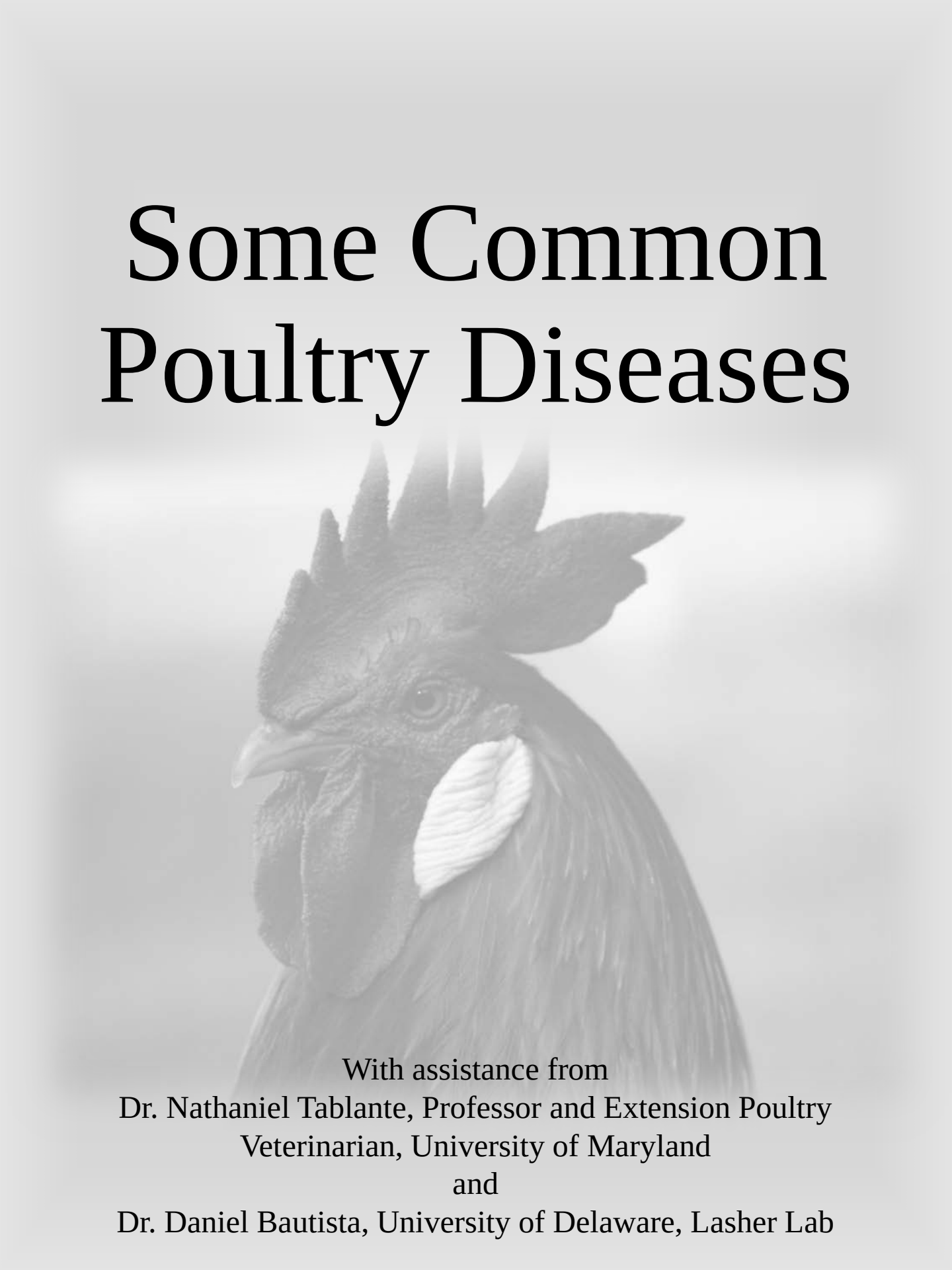
What To Look For

Normal

What To Look For

Something is wrong

Some Common Poultry Diseases



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Newcastle Disease (Ranikhet)

Caused by – Paramyxoviridae virus (RNA virus)

Signs can be identical to AI

- Facial swellings
- Red Shanks
- Respiratory Signs
- Nasal/Mouth Discharges
- Eye/Nasal Discharge
- Swollen crusty eyes
- Coughing/gaping, gasping
- Tracheitis
- Can be zoonotic to humans
  - Can cause conjunctivitis

Prevention and Control

Biosecurity

Vaccination

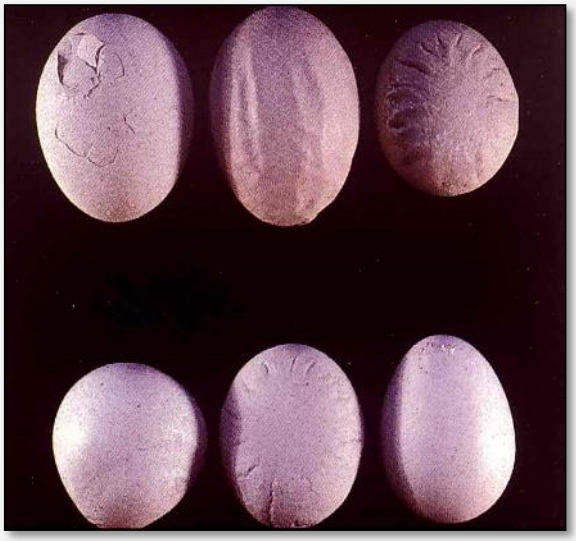
Quarantine of infected premises/areas

Destruction of infected birds/flocks

Proper disposal of infected carcasses

- Composting
- Burial
- Incineration

Cleaning and disinfection



Misshapen and abnormal eggs can be a sign of Newcastle disease

Avian Influenza

Caused by Orthomyxovirus

Type A Avian Influenza virus

Various serotypes (H5 and H7 strains are the most common in poultry)

Infects most birds

Can be zoonotic to humans

Note: wild waterfowl (ducks and geese) are natural reservoirs of AI virus

Signs and Lesions

Highly Pathogenic AI

Severe clinical signs

High mortality

Low Pathogenic AI

Mild respiratory signs

Minimal mortality

What to look for

Some symptoms of disease are:

- Sneezing, coughing, gasping for air
- Greenish watery diarrhea
- Depression, weakness, and lack of appetite
- Any unusual decrease in egg laying, or abnormal eggs
- Weight loss

Prevention and Control

Biosecurity

Quarantine of infected premises/areas

Destruction of infected birds/flocks

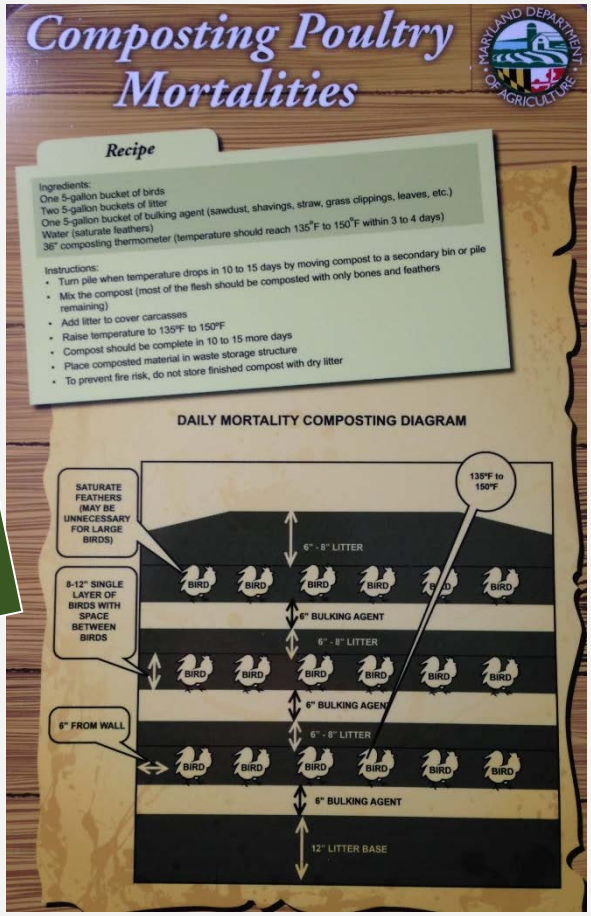
Proper disposal of infected carcasses

- Composting
- Burial Incineration
- Rendering
- Landfill

Cleaning and disinfection

If you bury dead birds make sure that they do not contaminate ground water

Also make sure to bury them deep enough to prevent scavengers from digging them up



Marek's Disease

Cause, Signs and Lesions

Caused by a herpes virus called *Alphaherpesvirinae*

Seen only in birds older than 16 weeks of age

Initially the birds may show paralysis of one or both wings or the paralysis may be in the legs

Less common forms of the disease include

- Enlarged feather follicles that redden and can sometimes lead to brown crusty scabs
- Lymphoid tumors in various organs
- The ocular form causes a graying of the eye and or a change in the shape of the iris and can result in blindness

Prevention and Control

Biosecurity

Vaccination

Quarantine of infected premises/areas

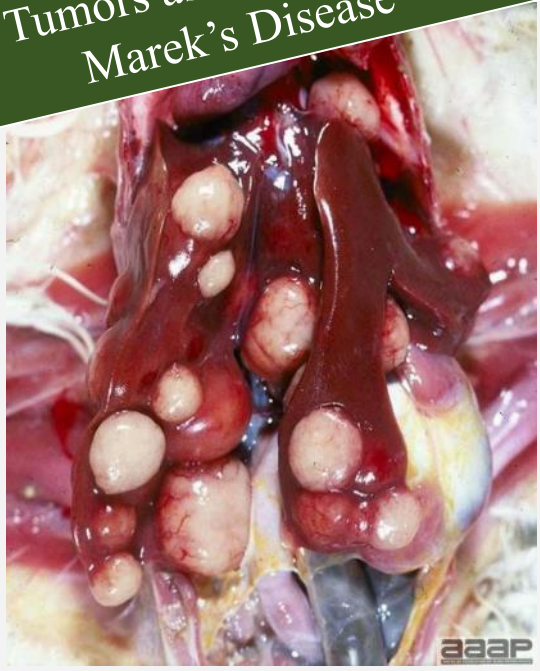
Destruction of infected birds/flocks

Proper disposal of infected carcasses

- Composting
- Burial
- Incineration

Cleaning and disinfection

Tumors associated with Marek's Disease



Mycoplasmosis
(Chronic Respiratory Disease)

Caused by *Mycoplasma gallisepticum*

Secondary *E. coli* infection is common

Transmitted through the egg, airborne droplets, or from bird to bird

Mycoplasmosis (Chronic Respiratory Disease)

Signs

- 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

Provide medicated feed (containing Tylan® or Gallimycin®)

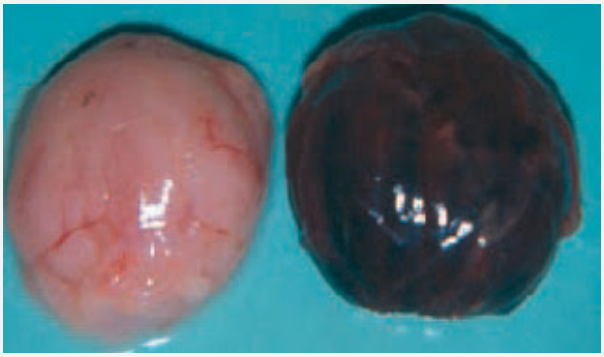
- Can reduce clinical symptoms but will not completely eliminate MG
- Be careful some antibiotics cannot be used for birds raised for meat and eggs

Even if birds have been treated with antibiotics, they can still spread MG to other birds

Harvesting (or culling??) meat birds may be better than treating them because treatment can be expensive

Don’t mix birds of different species and age

Infectious Bursal Disease (Gumboro)



Caused by *Birnavirus*

- Affects young birds, not older ones
- Adults are immune compromised
- Virus is very resistant, persisting for months in houses
- Insects can harbor the virus for up to 2 months

Signs and Lesions

- Depression
- Diarrhea
- Vent picking
- Unsteady gait
- Swollen bursa
- Necrotic bursa
- Bursal atrophy

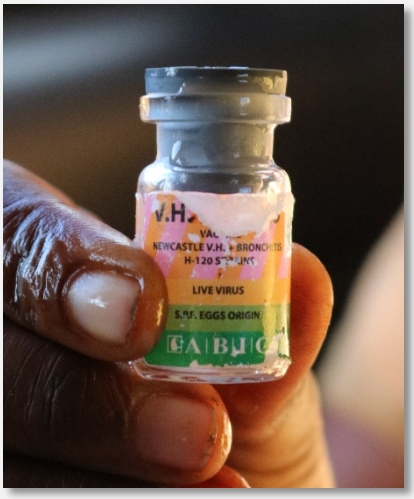
Prevention and Control

There is no treatment

Vaccination programs are used to prevent

Needs to be for the strain you have

Need good biosecurity



Fowl Pox

Caused by *Avipox* virus

There are two forms

- Dry pox
  - Cutaneous lesions on the feather-less skin
  - Some are ulcerated
- Wet pox
  - Skin lesions and/or plaques in mouth, pharynx, larynx, and sometimes the trachea

Prevention and Control

There is no treatment

Vaccination programs are used to prevent

- Wing web

Controlling mosquitos

Need good biosecurity – Sanitation

Wet form of Fowl Pox, often results in higher mortality

Internal Parasites

Roundworms (Ascarids)

Hairworms (Capillaria)

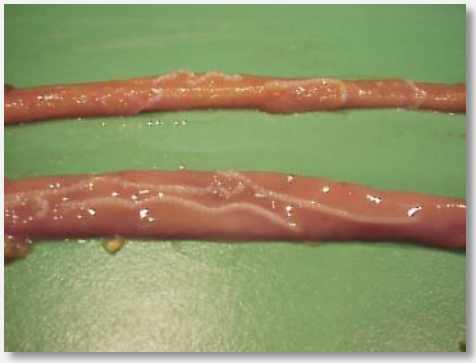
Cecal worms (Heterakis)

Tapeworms (Cestodes)

Hairworms

Signs and Lesions

Unthriftiness, stunted growth, emaciation, enteritis, anemia and decreased egg production



Prevention and Control

Rotate birds in yards or pens

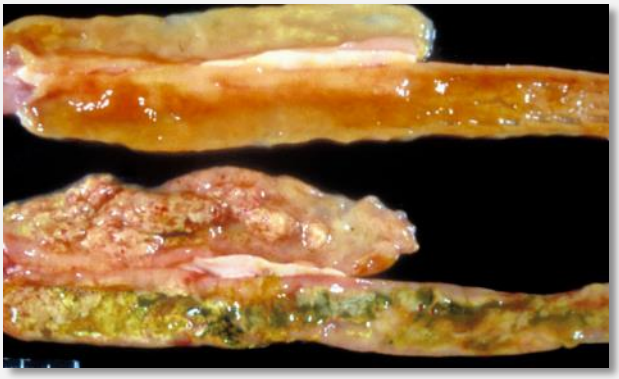
Deworm flocks regularly, particularly those raised on the ground or in floor pens

Provide medicated feed (containing broad-spectrum dewormer)

Treat infected birds with the proper dewormer

- *Piperazine* is effective only against roundworms and cecal worms
- *Fenbendazole* is effective against roundworms, cecal worms, and hairworms

Coccidiosis



Caused by *Eimeria sp.*

9 species in chickens

The main problem in broilers are caused by:

acervulina

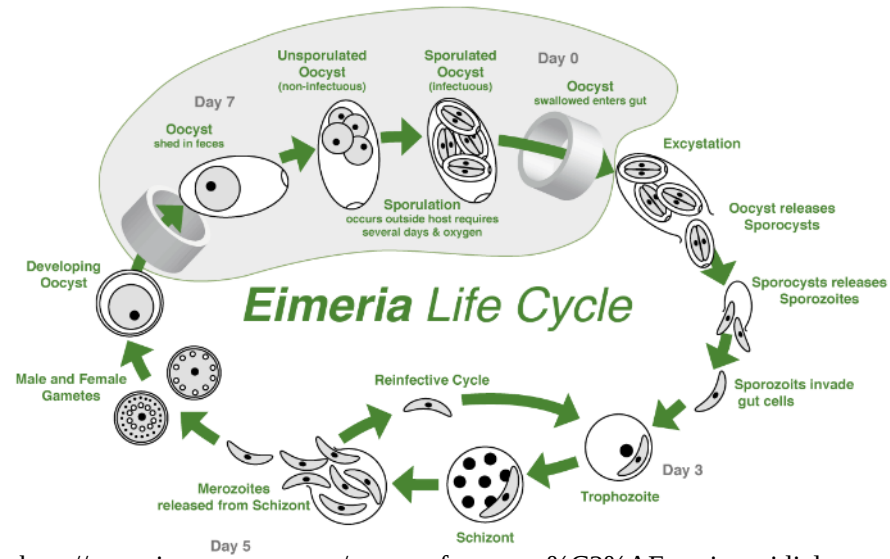
maxima

tenella

7 species in turkeys

Transmitted through infected droppings (containing oocysts)

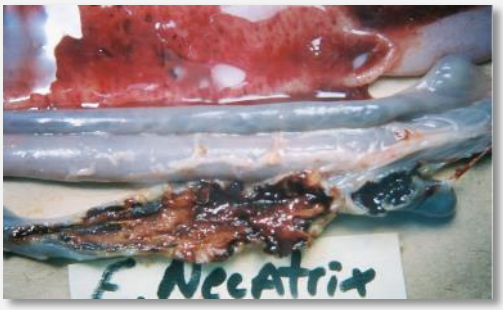
Coccidiosis



http://www.impextraco.com/xtra-performance%C2%AE-anticoccidials

Intestinal coccidiosis (caused by *E. acervulina, brunetti, maxima, and necatrix*)

- Loss of weight
- Shriveled combs
- Drop in egg prod.
- Pale shanks




E. Tenella

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

Prevention and Control

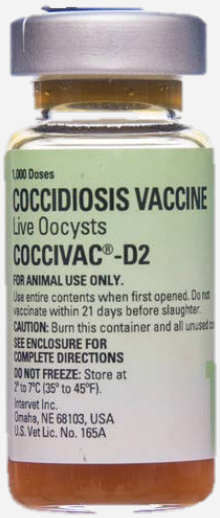
Good management

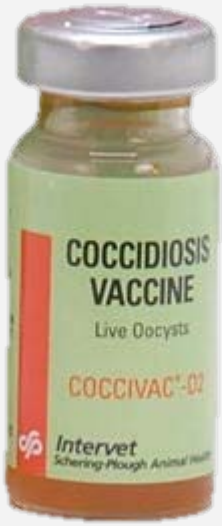
Provide medicated feed (with coccidiostats)

Treat infected flocks promptly

- There are two types of medications used, coccidiostatic and coccidiocidal
- Coccidiostatic medications stop the development of coccidia in the middle of the lifecycle
- Coccidiocidal medications kill the coccidian
- These medications are usually used in the feed.

A coccidia vaccine is available commercially in some parts of the world and can be given to chicks at one day of age





Other Diseases

Fowl cholera (pasteurellosis)

- Can affect birds of all ages
- Symptoms are similar to AI:
  - Diarrhea, respiratory symptoms, loss of appetite, blue combs and wattles
- No treatment
- Vaccine is usually available

Infectious coryza

- Seen in all ages of birds
- Symptoms:
  - Runny nose, swellings under the eyes, closed eyes, drop in egg production
- Treatment with antibiotics
- Prevent by biosecurity

Pullorum disease (Bacillary white diarrhea)

- Most commonly seen in young birds
- Symptoms:
  - Difficulty walking, big bellies, wing dragging and white runny feces
- No treatment
- Prevent by biosecurity

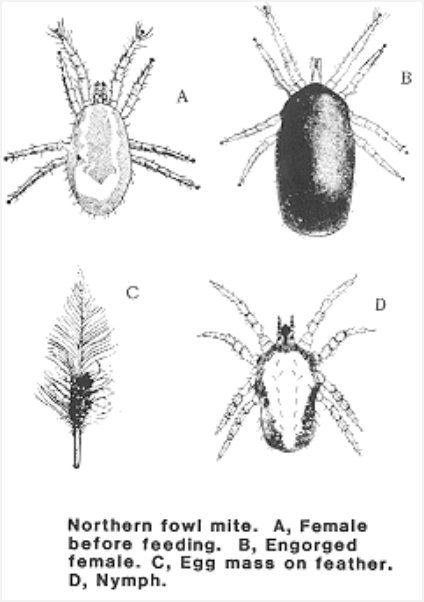
External Parasites

Mites

Scaly leg mite (*Knemidocoptes mutans*)

Chicken mite (*Dermanyssus gallinae*)

Northern fowl mite (*Ornithonyssus sylviarum*)



Northern fowl mite. A, Female before feeding. B, Engorged female. C, Egg mass on feather. D, Nymph.

Signs and Lesions

Scaly leg mite:

scales and crusts in legs, combs, and wattles

Northern fowl mite:

blackened feathers, scabby skin around vent

Signs and Lesions

Stay-Fast Fleas

Poultry ticks, when present can found hiding in debris or cracks in the chicken house

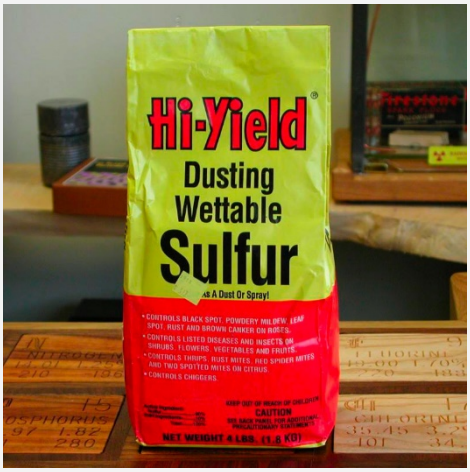
Prevention and Control

Scaly leg mite

- Cull or isolate affected birds
- Dip legs in warm acaricidal solution (consult veterinarian)
- Can coat legs in oil to smother the mites

Mites, Ticks and Fleas

- Monitor all birds and facilities for infestation; check egg flats and cases for mites
- Treat birds with approved insecticide (e.g. permethrin)
  - Sulfur powder and wood ashes can also be used
- Fill any cracks or crevices in the chicken house to eliminate hiding places for parasites



Vaccines

Vaccines

Vaccines are used to protect birds from diseases, usually viral diseases

Vaccines are used to prevent:

- Newcastle disease
- Marek's
- Gumboro (Ranikhet)
- Fowl Pox
- Fowl cholera

Methods of Vaccinations

1. Eye drops
2. Injections – under the skin (subcutaneous) and in the muscle
3. Skin piercing
4. Orally (in feed or water)

Vaccine Basics

1. All vaccines should be stored in a refrigerator before use
2. Some vaccines are so-called heat stable, which means that the vaccine can tolerate high temperatures (However, heat stable vaccines should also be stored in a cold place to keep them viable)
3. Always keep vaccines out of direct sunlight.
4. When using vaccines in the field, you should transport them in a cool box with ice
5. Do not use any chemical disinfectants to clean syringes, needles or other equipment used for vaccination, as these may destroy the vaccine (instead use boiling water and let cool before using)
6. The vaccines must be mixed or diluted in cold distilled water
7. Make sure any water used for vaccination is free of chlorine
8. It is best to vaccinate birds during the cool hours of the day, either in the morning or evening
9. Some mixed vaccines should be used within a short time frame, otherwise they will be useless and should be thrown away (check instructions for how long vaccine is viable after mixing)
10. Always read and follow the manufactures instructions
11. Don’t vaccinate sick birds, wait until they are healthy

Examples of Vaccine Schedules

These are only examples of programs and not suggestions

Age	Disease	Vaccination route
1 day	Marek's Disease (HVT/SB1 or HVT/Rispens)	Injection
18 days	Infectious Bursal Disease	Drinking water
24 days	Infectious Bursal Disease Newcastle Bronchitis	Drinking water Drinking water Drinking water
30 days	Infectious Bursal Disease	Drinking water
6 weeks	Newcastle Bronchitis	Spray Spray
10 weeks	Avian Encephalomyelitis[2] Newcastle Bronchitis	Spray Spray Spray
13 weeks	Avian Encephalomyelitis[2] Pox Newcastle Bronchitis Salmonella	Wing-web Wing-web Injection Injection Injection
15 weeks	Newcastle Bronchitis	Spray Spray

AGE	VACCINATION	METHOD
DAY 1 (Done By Hatchery)	MAREKS IB + NCD	INTRA MUSCULAR SPRAY
DAY 10-14	GUMBORO	DRINKING WATER
DAY 14-18	IB + NCD	EYE DROP
DAY 24-28	GUMBORO	DRINKING WATER
DAY 28-32	IB + NCD	EYE DROP
WEEK 6-8	NCD killed / IB + NCD - Live FOWL TYPHOID	IM / SPRAY INTRA MUSCULAR
WEEK 8-10	FOWL POX FOWL CHOLERA	WING STAB SUB CUTANEOUS
WEEK 12-14	FOWL TYPHOID	INTRA MUSCULAR
WEEK 16-18	NCD + IB + IBD (K) / IB + NCD (L) FOWL CHOLERA	IM / SPRAY SUB CUTANEOUS

Date of Hatching:_____

INDIGENOUS CHICKEN VACCINATION PROGRAM

AGE	VACCINE	MODE OF ADMINISTRATION	REMARKS
Day old	Mareks	Subcutaneous	Mainly for commercial hatcheries
Day 10	Gumboro (1st dose)	Drinking water	
Day 18	Gumboro (2nd dose)	Drinking water	
3 Weeks	Newcastle disease (1st dose)	Eye drop or Drinking water	
3 Weeks (in hot spot areas) 6 Weeks (Other areas)	Fowl pox	Wing web stab	
8 Weeks	Newcastle disease (2nd dose)	Eye drop or Drinking water	
	Fowl typhoid	Intramuscular injection	
18 Weeks	Newcastle disease (3rd dose at point of lay)	Eye drop or Drinking water	Repeat every 3 months
19 Weeks	De-worming	Drinking water	Repeat every 3 months

Notes:

- **NEVER vaccinate sick chicken**
- **Consult your veterinary/livestock staff for detailed vaccination programs in your area**

FINAL THOUGHTS

Work with local animal health officials to design a vaccine program for your birds

Make changes with help from animal health officials whenever disease challenges change

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 stone unturned”

Initiate corrective or preventive measures promptly

When in doubt, seek expert advice

Practicing strict biosecurity, and provide adequate high quality feed, water, ventilation, heat, etc. (a.k.a. bird comfort or TLC) will help prevent disease

Biosecurity

What is Biosecurity

"Bio" means life and "security" means protection

"Life protection"

Any and all practices and protocols used for the prevention of disease

Why is it important?

- To prevent the spread of disease
- Maintain healthy flocks
- Profitability

Effects of Disease

Decreased reproduction
Decreased productivity
Increased mortality
Decreased cash-flow
Quarantines
Market loss
Flock loss

So what can we do?

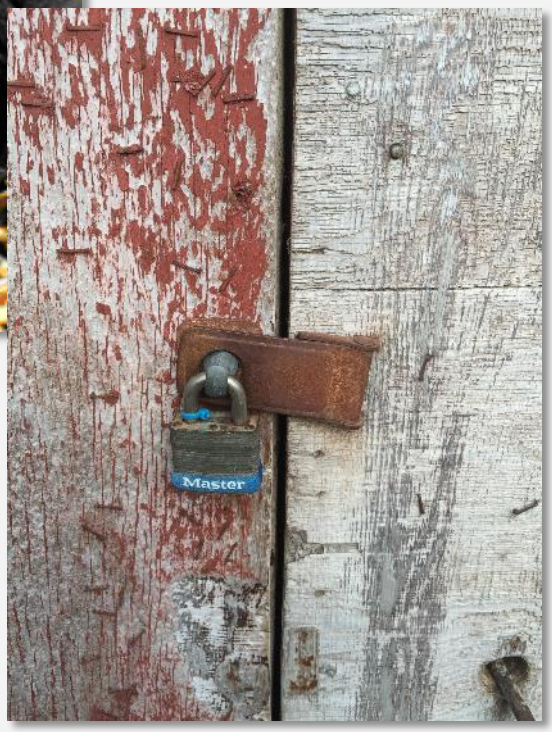
Keep people out

Keep birds out

Keep animals out

Remove dead and sick birds quickly

- Know what sick birds look like



Elements of Biosecurity

- Isolation
  - Confine your birds within a controlled environment
    - Keeping other birds out
    - Locking doors to prevent others entering
  - Separating birds by age
- Traffic Control
  - Control traffic on and around your farm
- Sanitation
  - Disinfect material, equipment, and people that work or enter the farm

Isolation-Keep people out!

If people need to come on the farm make sure that they have not been around any other birds!

Have a fence around your farm

- Keeps people and animals out
- Put up signs

Keep a record of who enters the farm, why they are entering and where they are coming from

Have visitors wash their shoes

Better yet, have them wear plastic covers over their shoes after washing them

Particularly those that own poultry

Post signs to keep people out. Make sure that there is a place to wash hands on entering the farm.

Why Clean Shoes?

People spread disease

Footwear goes with you – everywhere!

You can not see germs on shoes

Easier than you think!

Clean Shoes

Foot baths need to be cleaned often

If they have dirt in them they are not effective

Use something that is easy to clean

Make sure permanent foot baths can be drained and cleaned

Use disinfectants

Use signs

PLEASE STEP INTO FOOT BATH BEFORE PROCEEDING

Maintain Footbaths Properly

Clean Shoes

Everyone needs to use footbaths!

- This means owners and those in charge

Use the footbath when you enter the chicken house and then again when you leave it

If you can, have a pair of shoes for each house and only use them there

Use Shoe Covers

Wash Hands

Simple washing your hands often will help stop the spread of disease

Make sure to wash when you return to the farm from a trip to town or a visit to a neighbor

Use signs

Wash Clothes

Clean clothes helps stop the spread of disease

If you can, have a set of clothes to wear only in the chicken house

Drying clothes in the sun can help disinfectant clothing

Prevent wild birds from entering houses

Use wire or other materials to fill holes in housing to prevent birds from entering
Put feed and water inside so it is hard for wild birds to get it

Examples of bad designs

Don’t mix different species of birds and keep “wild” chickens away from your birds

Once a bird leaves the farm **DO NOT** let it come back on the farm.
Do not bring birds onto the farm unless you quarantine them first.

Biosecurity

If you must buy birds know the source

- Buy them from a local farmer who has good stock

Make sure that they are healthy

- Go and look at the birds,
- If possible, go and look at birds they have sold to other farmers (practice biosecurity)

Separate new birds for at least 3 weeks to make sure that they are free of disease

Move Sick Birds Away From Healthy Birds

Keep them isolated until they are healthy again

- Locate the sick pen as far from other birds as possible
- Visit them last and wash your shoes and hands after taking care of them

If possible, have a veterinarian or other trained specialist look at them

Disinfect the pen after sick birds are removed

All in All Out

Have only one age of birds on the farm

- Sell all birds
- Clean and Disinfect the buildings
- Leave farm empty for a week or two
  - Longer times between flocks reduces disease
- Place next flock

If You Have Birds of Multiple Ages

Maintain them in separate areas away from each other to help prevent the spread of disease

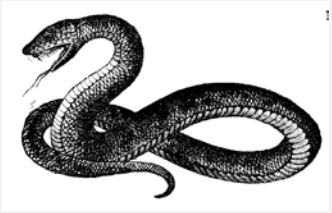
Take care of the younger birds before visiting the older birds

Always clean shoes and hands before checking each flock of birds and between flocks

- Better yet have different shoes that you wear only to check that flock

Store feed properly

Store feed off the ground. If feed is set on the ground, moisture can enter the feed and make it mold.
Store feed so rodents can not access it. Placing feed in barrels can help.

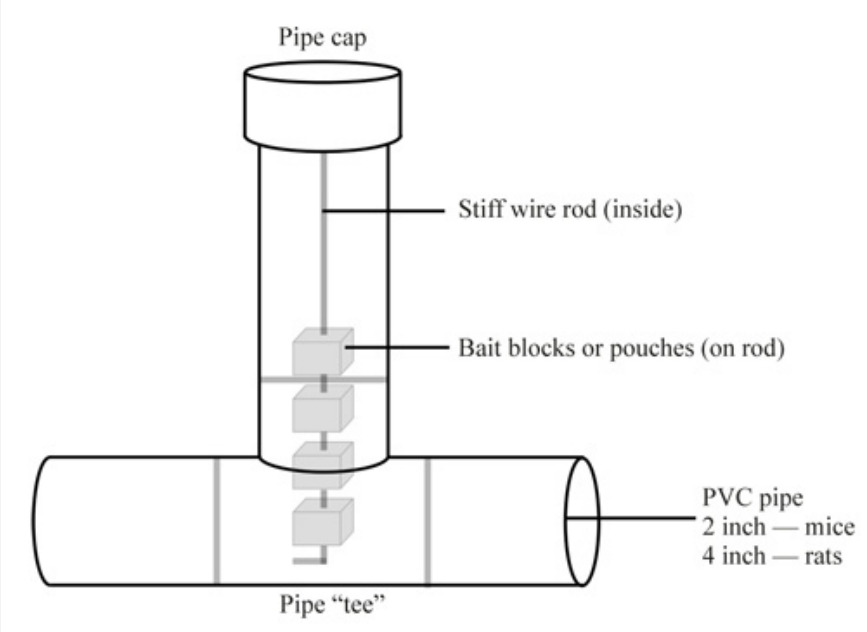


Storing feed properly can reduce rodent problems

Control Rodents and Insects

Rodents can cause damage to buildings and equipment as well as spread disease

Insects can also damage buildings, eat insulation and spread diseases



Cleaning and Disinfection

Simple physical removal of contaminated material reduces the pathogens

Surfaces need to be cleaned before disinfectants are used

Disinfectants do not work if there are large amounts of organic material (manure, dirt, litter) present

Application of an appropriate disinfectant can further reduce the risk of pathogens in a clean environment

Follow the directions for the product you are using

Cleaning and Disinfection

One of the best things we can do to reduce disease is let the chicken houses sit empty

- Most agents that cause disease need a place to live so if the house is empty their numbers will go down over time

The longer the time between flocks of birds the lower the chance of disease remaining from the previous flock

Types of disinfectants

Natural	Chemical
Sunlight (UV)	Oxidizing agents
Heat	Alcohols
Cold	Halogens
Desiccation	Coal Tar Products
pH	Phenolics
Antibiosis	Quats
Organic Acids	Aldeydes
	Ammonia

Types of disinfectants

Clean Your Farm

Remove garbage and debris

Cut the grass and weeds

Don’t leave dead birds laying around

Clean up feed spills

When Disease Strikes

Call your veterinarian

Get a diagnosis of the disease and then try and determine how it happened

Work with the Animal Extension group

Don’t visit other farms

Get the sick and dying birds away from the healthy birds

- Move them as far away as possible

Euthanize the birds humanely

Dispose of dead quickly to prevent further diseases

Remember Diseases are Spread by

Wild birds

Other poultry (chickens, ducks etc.)

Humans

Cats

Pigeons

Rodents

Insects

In order to protect your chickens you must limit contact with all of these things

Record Keeping

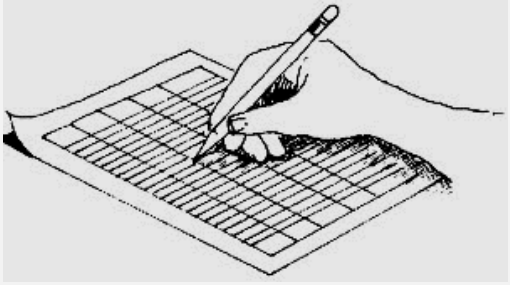
Record Keeping

Records are needed in order to evaluate production methods

You can't correct problems if you don't know what you are doing and what you have done in the past

Need to keep records

- Financial Records
- Production Records



Financial Records

Important in order to know if you are making money

Helps to determine what production methods work

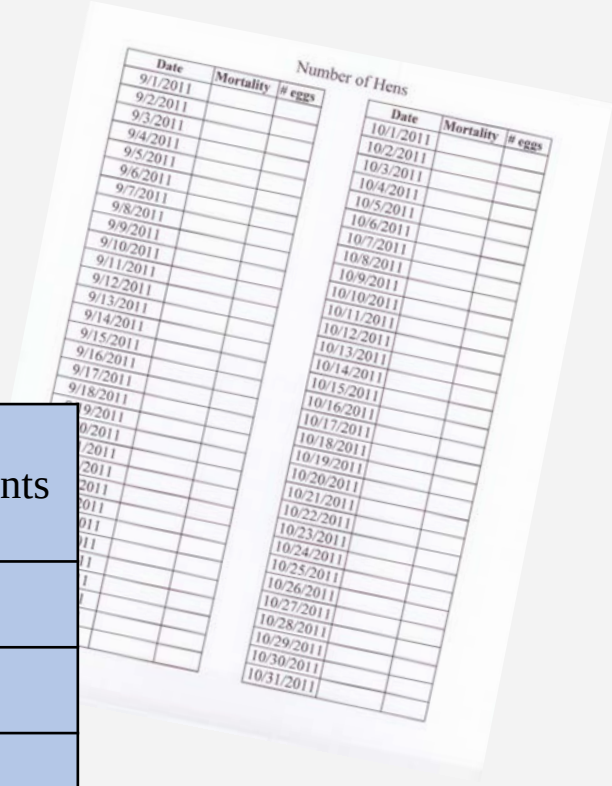
Date	Description	How Many	Total Cost	Income
10/Jan/2013	feed	400kg	$200	
10/Jan/2013	fuel	20 liters	$20	
12/Jan/2013	chicks	100	$100	
01/Feb/2013	labor		$30	
01/Mar/2013	labor		$30	
09/Mar/2013	birds	90		$450
Total			**$380**	**$450**

Production Records (meat birds)

- Number of birds
  - Source of the birds
  - Start of grow-out
  - Mortality
    - Why did they die
- Weight of birds
  - Weekly
  - Final
- Keep field records with the birds
  - Amount of feed used
  - Total
  - Weekly
- Disease
  - Type
  - Number affected (age of birds)
- Anything else that happens different
  - Weather
  - Feed change
  - Mechanical problems

Production Records (layers)

- Source of hens
  - Type
- Number of eggs
  - Daily (compare weekly)
  - Age of hens is also important
    - Age affects production rate
  - Egg size
- Mortality
- Feed consumption



Date	Feed Added	# Dead	Comments
June 1			
June 2			
June 3			
June 4			
June 5			
June 6			
June 7			

Records of Flock Health

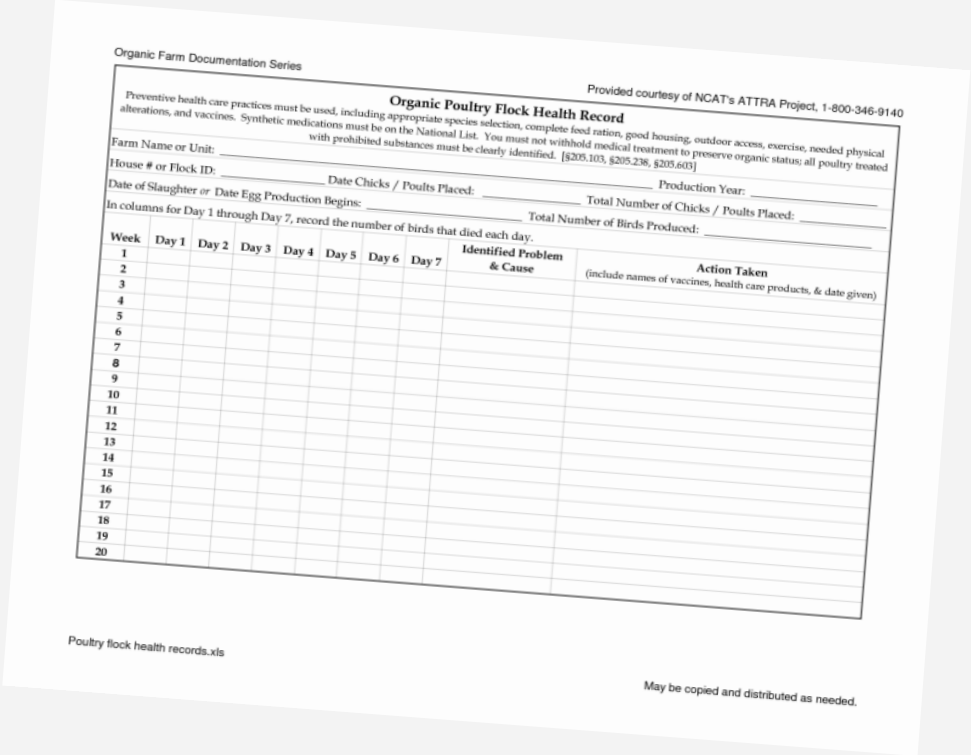
Acceptable parameters

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
  - Treatments



Organic Farm Documentation Series

Provided courtesy of NCAT's ATTRA Project, 1-800-346-9140

Organic Poultry Flock Health Record

Preventive health care practices must be used, including appropriate species selection, complete feed ration, good housing, outdoor access, exercise, needed physical alterations, and vaccines. Synthetic medications must be on the National List. You must not withhold medical treatment to preserve organic status; all poultry treated with prohibited substances must be clearly identified. [§205.103, §205.238, §205.603]

Farm Name or Unit: _____ Production Year: _____

House # or Flock ID: _____ Date Chicks / Poults Placed: _____ Total Number of Chicks / Poults Placed: _____

Date of Slaughter *or* Date Egg Production Begins: _____ Total Number of Birds Produced: _____

In columns for Day 1 through Day 7, record the number of birds that died each day.

Week	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Identified Problem & Cause	Action Taken (include names of vaccines, health care products, & date given)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Poultry flock health records.xls

May be copied and distributed as needed.

Records

It is important to keep accurate records

Don’t make the system so hard it does not get done properly

The more data you collect the more you can learn about the business

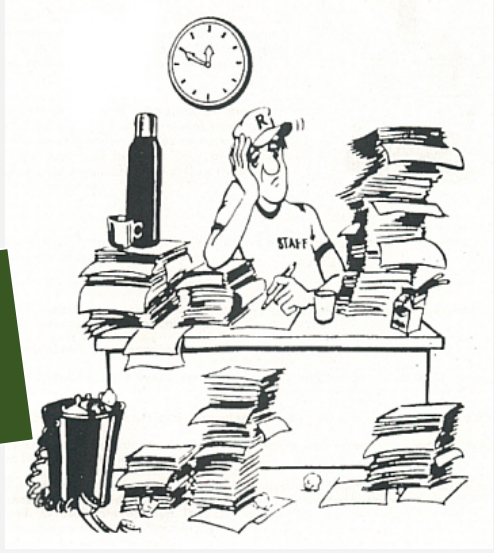
Keeping records allows for a way to compare

- Flocks
- Farms
- Breeds of birds
- Suppliers

In poultry flocks where records are not kept, fewer diseases or problems are noticed and therefore, they can’t be prevented or fixed

The sooner you start treating a problem the better,

- Less loss of production
- Less chance of it spreading



Keep the records for several years
Maintain an organized system
That way you can find them

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UNIVERSITY OF MARYLAND EXTENSION

Solutions in your community