

FOWL:

YOUR FEATHERED FRIENDS

Your Comprehensive Guide to Keeping Urban Chickens and Small Flocks



Acknowledgments

This manual and accompanying education program is designed to help those who already own or are contemplating the purchase of urban/backyard hens or small flocks. It is essential that animal care and bird health practices are optimal for these lovely beings in our care. We aim to help you do the best job you can for the birds. If you should ever need help, there is a wealth of information available for you – just drop us a line!

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Fun manual title courtesy of Martha Schroeder-Klassen!

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WHO IS ALBERTA FARM ANIMAL CARE?

Alberta Farm Animal Care (AFAC) is a multi-species livestock welfare organization. Our mission is to promote best practices in farm animal care and handling and provide a forum connecting organizations and individuals with a stake in animal agriculture. Together we work towards continual improvement in responsible, humane animal care. We engage with consumers in a transparent manner to enhance public confidence in farm animal care.

AFAC was founded in 1993 by the livestock industry to work for the livestock industry. We are primarily funded through memberships and contributions. We have a strong working relationship with the Government of Alberta's Agriculture and Forestry department and receive some program and project funding from them to enhance the work that we do here.

We strongly believe that we are better together. Each of our members provides a unique perspective from their farm, business, or organization. By providing a forum for discussion, AFAC is able to strengthen the industry from within.

WHAT DOES ALBERTA FARM ANIMAL CARE DO?

Farmers, commodity organizations, agribusinesses, and other members of the agri-food value chain invest in Alberta Farm Animal Care each year. They do so because they believe in a community-based approach to building public trust in farming and continuous improvement in farm animal care. We strive to produce helpful resources and communications for both farmers and the public. We are proud to help represent the livestock farming community!

SOME OF OUR INITIATIVES INCLUDE:

Member Engagement –

Maintaining a strong connection with our members allows us to keep on top of the issues and help you to do the same. We regularly check-in with our members to ensure that the work we do continues to be useful!

Annual Livestock Care Conference –

Every year we bring together industry experts, researchers, innovative producers, and students together to learn about the latest improvements on animal care and welfare around the world

Consumer Relations/Engagement –

A strong presence at public events (such as the Calgary Stampede, FarmFair, Open Farm Days, etc.) and on social media allows us to engage in dialogue with the public and help educate consumers on farm animal care and farming.

Industry Resources/Training –

We continually create and maintain resources and training opportunities for the farming community in order to help improve animal care and welfare on-farm (ex. Humane Handling Guidelines, insight into the latest animal welfare research, emergency handling)

ALERT Line –

This is a “producers helping producers” call-line that is designed to provide help and advice to producers on issues of animal care or welfare from within the industry.

Farm Animal Care Advisory Council –

As a producer or organization member of Alberta Farm Animal Care, you can participate in our Advisory Council meetings. These meetings provide a forum for our members to connect and provide input, ideas, and valuable discussion on current issues within industry.

Farm Animal Care Initiatives –

We create, fund, and facilitate projects that examine issues relevant to more than one group, identify options for consideration, and drive change in the industry.

Collective Spirit –

We work hard at maintaining public acceptance (social license) by telling the good story of animal agriculture through video, infographics, and other visual communications. We believe that we are better when we support one another and act together.

Agriculture Education –

We provide customized presentations to schools (students of all ages!) and youth groups, educating on the principles of animal welfare, the purpose of Alberta Farm Animal Care, and how members work collaboratively to find solutions to complex issues that affect the industry.

Objective and Effective Communication –

One of the most important pieces of our work is to act as an information hub for both the public and the livestock industry. Information from our members feeds into the organization and is distributed out to a greater audience through a variety of channels (events, newsletters, and social media).

For more information on current projects, programs, and available resources, please visit www.afac.ab.ca.

WE NEED YOU!

As a producer, livestock industry organization or stakeholder, or simply an individual without livestock that believes in the work we do, please consider becoming a valued member of the AFAC family! Head to our website for more information and to sign-up online (www.afac.ab.ca/become-a-member) or contact us at info@afac.ab.ca or 403-652-5111.

WELCOME!

Welcome! If you are interested in learning more about keeping urban chickens or small flocks in Alberta, you have come to the right place!

In recent years there has been increased interest from individuals and communities on keeping urban chickens or small flocks. A 2013 study from the United States Department of Agriculture (https://www.aphis.usda.gov/animal_health/nahms/poultry/downloads/poultry10/Poultry10_dr_Urban_Chicken_Four.pdf) states that raising chickens in urban environments is a growing phenomenon and predicts a 400% increase in backyard chickens over the next five years, driven primarily by younger adults.



There are many reasons you may want to keep chickens. Reasons may include: raising food for your own family or selling to others locally (e.g. at farmers' markets), wanting to know more about how your food is produced, for pest/insect control, compost for the garden, or for companionship. Many individuals also see raising chickens as an educational opportunity for their children to gain exposure to food production and to learn the responsibility of caring for animals.

This is a comprehensive guide that contains information to raise urban chickens or a small flock in Alberta. We will cover local regulations, basic chicken needs, how to design and construct a coop, bird behaviour and welfare, health problems and diseases, biosecurity, and more. Let's get cracking!

CHAPTER 1: LEGISLATION

LOCAL REGULATIONS

Before you decide to keep chickens, it is important to ensure you are permitted to keep chickens in your municipality and familiarize yourself with local regulations.

Communities that have passed bylaws permitting urban chickens will have policies with guidelines and specific criteria for that area. Each municipality has its own policies or bylaws that can usually be found on the town office website.

POLICIES BYLAWS MAY INCLUDE:

- Restriction on the number of hens (4 to 8 hens is typical)
- Roosters not permitted because of the crowing. Roosters are only required for breeding purposes, not to produce eggs
- Age requirement for hens (i.e. over 16 weeks)
- Requirement for residents to apply for and pay to maintain an annual license
- Requirement for adjacent neighbors to be notified
- Completion of an educational course from an accepted organization or contractor
- Placement of the coop a specified number of feet from any property line
- Eggs for personal use only (not for sale)
- No slaughtering of the birds on the property
- Requirement for birds to be kept in the coop and run at all times
- Obtaining liability insurance
- Submission of a development permit with a current Certificate of Title
- Inspection of the coop before application for a license
- Hens being tagged for identification purposes

Many urban communities in Alberta currently allow residents to keep chickens. For an up to date list, please go to www.afac.ab.ca.

There may be other communities in Alberta that are conducting pilot projects or are in discussion regarding urban hens.

Residents who live on acreages are also required to follow bylaws specific to the county they reside in. County bylaws regulate how many animals are owned, housed, or controlled. Residents may be required to follow Animal Control Bylaws or Land Use Bylaws. Each county has its own policies that can usually be found on the county office website.

POLICIES MAY INCLUDE:

- Restriction on the number of chickens per acre
- Maximum total number of animals allowed
- Restriction on species of poultry

PREMISES IDENTIFICATION NUMBER (PID)

All municipalities in Alberta require anyone who owns chickens, whether you own 2 or 20,000, to register on a provincial database and obtain a premises identification (PID) number. A PID number is a unique number assigned to you and associated with your specific land location. You must obtain a PID number within 30 days of acquiring ownership of your chickens.



A PID NUMBER SERVES MANY FUNCTIONS:

- For traceability purposes linking poultry to land locations or premises
- To manage a disease outbreak (to notify you if disease is in the area)
- In emergency situations, such as a natural disaster (to help protect your birds)
- To purchase medication or medicated feed at farm supply stores (this requirement took effect on July 1, 2014)
- To complete movement documents, if required, when transporting animals
- To sell animals at auction markets
- To apply for government sponsored agriculture grants and programs

When you apply for a license to keep urban chickens in a community, you will likely be required to include your PID number.

A PID number is free to obtain and can be completed online at: www.agriculture.alberta.ca/premises.

Once you apply, you will receive a letter in the mail within two weeks with your PID Number. Your PID number will appear in your online account within 3-5 business days.

Marketing

SELLING EGGS

Urban communities have regulations that prohibit selling of the eggs. As an urban chicken owner, eggs are for your personal use only.

Small flock owners must follow provincial and federal regulations if you are planning on selling your eggs to the public.

Inspected eggs are those that have undergone candling, grading, and other food safety checks at a federally registered egg station. Registered egg stations must meet federal requirements related to construction, facilities, layout, equipment, sanitary operation, and grading requirements. Only inspected eggs can be sold for commercial use.

If you would like to sell your eggs to a commercial establishment such as a restaurant, bakery, or hotel, your eggs must be inspected at a federally registered egg station.

YOU WILL NEED TO:

- Obtain a grading license from the Canadian Food Inspection Agency (CFIA). An application can be found at: http://www.inspection.gc.ca/DAM/DAM-aboutcfia-sujetacia/STAGING/text-texte/c3043_re_1381168478009_eng.pdf
- Find a federally registered egg station that is licensed by Egg Farmers of Alberta (EFA) to grade third party eggs. A list of registered egg stations can be found at: <http://www.inspection.gc.ca/food/eggs-and-egg-products/registered-stations/shell-egg-stations/eng/1391029540171/1391029591047>

Uninspected eggs are those that have not been inspected and graded at a federally registered egg station. You are allowed to sell uninspected eggs to the public, provided they are consumed by the person who purchased the eggs or their family members.

THERE ARE CONDITIONS THAT MUST BE MET TO SELL UNINSPECTED EGGS IN ALBERTA:

- The eggs must be produced on the flock owners own farm
- The eggs must be sold to the end consumer
- The eggs must be clean and have no visible cracks or leaks
- The eggs must be kept in the flock owner's possession at a temperature that does not exceed 7°C. Eggs should be held in a cooler that can maintain the cool temperature
- The eggs must be packed under sanitary conditions in clean containers that are legibly marked with the word "UNINSPECTED" in letters at least 2 centimeters tall



YOU CAN SELL YOUR EGGS THROUGH SEVERAL SETUPS:

- Farm Gate: The product is sold directly from your farm
- Farm Store: The product is sold in its own building on your farm
- Community Supported Agriculture program: The consumer purchases "shares" to buy food directly from the farmer
- Local Farmers' Markets
- Online Orders

SELLING MEAT OR BY-PRODUCTS

Urban communities have regulations that prohibit selling meat, manure, or other poultry products or slaughtering chickens on the property. Chickens raised in urban communities are intended for eggs only.

Small flock owners must follow provincial and federal regulations if you are planning on selling meat or by-products to the public. You are required to live on the land where the chicken was raised and to follow any county bylaws regarding how many animals are owned, housed, or controlled.

The provincial regulations in Alberta allow for a mobile butcher to slaughter your animals on your premises, but this meat can only be used by you or members of your immediate household; you cannot sell the meat to the public. The same regulation applies if you butcher an animal and process it yourself on your property.

If the meat will only be sold within Alberta, the slaughter and processing can be done at a provincially registered facility.

THERE ARE CONDITIONS THAT MUST BE MET TO SELL MEAT OR BY-PRODUCTS IN ALBERTA:

- The chicken must be inspected by an appointed inspector
- Inspection must take place before and after slaughter
- Slaughter must happen at an abattoir
- Carcasses must be found fit for human consumption
- Approved meat must carry an Alberta Approved Inspection Legend that may be placed directly on the carcass or meat or on the packaging



THE CHICKEN MUST BE CONSUMED BY YOUR FAMILY OR SOLD DIRECTLY TO THE PUBLIC THROUGH SEVERAL SETUPS:

- Farm Gate: The product is sold directly from your farm
- Farm Store: The product is sold in its own building on your farm
- Community Supported Agriculture program: The consumer purchases "shares" to buy food directly from the farmer
- Local Farmers' Markets
- Online Orders

If you intend to transport poultry and poultry by-products to another province, the product must be inspected, handled, and stored at a federally registered facility. Lists of provincially and federally inspected processing plants can be found here: <http://www.inspection.gc.ca/food/meat-and-poultry-products/registered-establishments/eng/1374560511959/1374560512678>

SUPPLY MANAGEMENT

Supply management is a Canadian policy that matches supply and demand to ensure market and price stability. Eggs, poultry (chicken and turkey), and dairy have all operated under supply management in Canada for over 50 years.

Under supply management, poultry farmers purchase quota to produce poultry meat or eggs.

IN ALBERTA, YOU DO NOT NEED TO PURCHASE QUOTA IF YOU HAVE:

- 299 or less laying hens in your possession
- 2000 or less meat chickens in a calendar year
- 300 or less turkeys in a calendar year

Ducks, geese, pheasants, quail and ostriches do not fall under supply management. There are no limits on duck, turkey, quail or goose eggs.

You will need to acquire quota if you intend to raise more birds than the numbers specified above. For information on acquiring quota, contact Egg Farmers of Alberta at <http://eggs.ab.ca> for laying hens, Alberta Hatching Egg Producers at <http://www.ahep.ca> for broiler (meat chicken) breeders, Alberta Chicken Producers at <http://www.chicken.ab.ca> for meat chickens, and Alberta Turkey Producers at <http://www.albertaturkey.com/> for turkeys.

CHAPTER 2: Breeds

There is great variety within the 200+ chicken breeds that exist today, from Bantams (a small poultry breed) that weigh just a few pounds to larger chicken breeds, such as the Cochin or Jersey Giant who can weigh up to 10 pounds!

Chickens come in a wide variety of colours, patterns, and sizes. Some chickens are bred for egg production (layers) and others are bred for meat production (broilers). Other breeds are dual purpose, productive for both egg and meat production. Dual-purpose breeds are popular choices among urban hen and small flock owners as they typically provide more bang for your buck.



DISTINGUISHING BETWEEN HENS AND ROOSTERS

It is very difficult, especially when chickens are young, to distinguish between a hen and a rooster. Commercial hatcheries have highly trained professionals who are experienced at determining a chick's gender by looking at the vent. The vent of a chicken is the external opening under the tail that looks like a horizontal slit. This is the opening for fecal matter, mating, and where eggs are laid. Even chicks sold as sexed may have been sexed incorrectly.

There are other sexing methods, including colour sexing and wing feather sexing. There is also DNA testing available. One company offering DNA Bird Sexing in Canada is: <http://www.accu-metrics.com/avian.php>.

AT ABOUT 4 MONTHS OF AGE, THERE MAY BE SOME INDICATIONS THAT YOU HAVE A COCKEREL (MALE CHICKEN LESS THAN A YEAR OLD) OR A PULLET (FEMALE CHICKEN LESS THAN A YEAR OLD):

- Cockerels will develop long saddle feathers on their backs, towards the tail. The feathers will be long and pointy, whereas the pullets will be rounded.
- Hackle feathers, the feathers that grow around a chicken's neck, are long and pointy on a cockerel and shorter and more rounded on a pullet.
- A cockerel's tail feathers become long and cascading. These feathers are called sickles.
- A cockerel's feathers will become flashy in color compared to a pullet's.
- While both sexes have wattles and combs, in cockerels these tend to be larger and darker.
- While both sexes can have spurs, it is less common in pullets.
- Cockerels start crowing around 4-5 months of age.
- Cockerels may act more assertively than pullets at a young age.
- Cockerels are generally heavier and taller than pullets of the same breed.

BREEDS

WHEN SELECTING A BREED TO BEST SUIT YOUR NEEDS, IT IS IMPORTANT TO CONSIDER:

- If you plan on raising your chickens for eggs, meat, or would like a dual-purpose breed. Each of these birds needs to be managed differently which will be covered in detail in Chapters 3 and 4. Communities that permit urban chickens are intending residents to keep chickens for the eggs (there are bylaws against slaughtering of birds on the property), so a layer or dual-purpose breed would be appropriate.
- The climate where you live, especially if your birds will be spending time outdoors. Breeds that originated in Northern climates have traits that are well adapted to cold weather:
 - Thick feathering
 - Small combs/wattles to decrease the risk of frostbite
 - Larger body mass
- The birds behavioural tendencies and needs
 - If you are looking for a breed that is calm and friendly, a dual-purpose breed may be an ideal choice.

Many urban chicken and small flock owners will choose to mix breeds. Generally speaking, birds of different breeds will get along well although they may need to be managed differently.



BREEDS FOR EGG PRODUCTION

Birds bred specifically for egg production will start laying around 22 weeks of age. Layer breeds are known for their high egg production with some laying as many as 300 eggs annually. These birds generally have small frames and do not make good meat birds.

Lighting is of critical importance for layers, with birds requiring at least 14 hours of light a day to lay eggs. You will need to provide artificial lighting during the fall and winter months, when the days are short, to stimulate the birds to continue to lay.

BREEDS KNOWN FOR THEIR HIGH EGG PRODUCTION:



Isa Brown Chicken, Photo: cskk/Flickr

Leghorn

Considered the best egg-laying breed, Leghorns can lay up to 300 eggs annually. This breed is commonly found in the commercial egg-laying industry. They have a small frame with large combs and lay white, medium sized eggs. Leghorns can be noisy and flighty, and may be harder to tame.

Isa Brown

Is a hybrid of a Rhode Island Red and Rhode Island White chicken. They can lay up to 300 eggs annually. This breed can also be found in the commercial egg-laying industry. They have a medium frame and lay brown, large to extra large sized eggs. Isa Browns are calm and gentle and are an excellent choice for a first time chicken keeper.

BREEDS FOR MEAT PRODUCTION

Birds bred specifically for meat production are bred to have large, deep breasts, a large frame, and will grow fast. Broilers generally do not lay well.

Nutrition is of critical importance for broilers. These birds should be slaughtered before they start to lay eggs. Depending on how you manage your broilers (for example, if they have access to pasture and the age they are slaughtered) they may taste slightly different than chicken you purchase from the grocery store.

BREEDS KNOWN FOR THEIR MEAT PRODUCTION:

Cornish/Rock Hybrids

This hybrid is commonly found in the commercial broiler industry. They are ready to butcher as early as 10 weeks old, with huge breasts and an excellent feed conversion ratio. Both sexes grow at a similar rate. Because of their extremely fast growth, the birds' nutritional needs must be carefully managed to avoid problems with their hearts and legs. They are generally not well suited to a free-range or pasture system.

Jersey Giant

These birds grow slower than the Cornish/Rock hybrids. They have a large frame and are meaty birds. They are also average layers, laying brown medium sized eggs. They do well in cold climates.



DUAL-PURPOSE BREEDS

Dual-purpose breeds are versatile, adaptable breeds that are good at laying eggs but are also meaty enough to use as meat birds. These birds need to be managed to balance the needs of a layer and the needs of a broiler. Dual-purpose breeds are a common choice for urban chicken or small flock owners as they generally have calm and friendly dispositions.

THERE ARE NUMEROUS DUAL-PURPOSE BREEDS, HOWEVER A FEW OF THE MORE POPULAR BREEDS ARE:

Rhode Island Red

Rhode Island Reds can lay up to 250 eggs annually. They have a medium frame and lay brown, medium to large sized eggs. Rhode Island Reds are very friendly and do well in cold climates.

Australorp

Australorps can lay up to 250 eggs annually. They have a large frame and lay brown, medium to large sized eggs. Australorps are calm and friendly and are known for their high egg production.

Plymouth Rock

Plymouth Rocks can lay up to 200 eggs annually. They have a large frame and lay brown, large sized eggs. Plymouth Rock's do well in cold climates and are easy to manage. They were a very common breed in the United States until World War 2 because of their egg production and meat quality.

Orpington

Orpingtons can lay up to 200 eggs annually. They have a large frame and lay light brown, large to extra large sized eggs. Orpingtons are docile and do well in cold climates.

Wyandotte

Wyandottes can lay up to 200 eggs annually. They have a large frame and lay light brown, large sized eggs. Wyandottes come in a variety of feather patterns and are a favourite among small flock owners as they are easygoing and hardy.

Maran

Marans can lay up to 175 eggs annually. They have a large frame and lay very dark brown, medium to large sized eggs. While good layers, they do not lay as well as other dual-purpose breeds. Marans are generally quiet and docile, but may be more active than other breeds noted here.

Cochin

Cochins lay up to 100 eggs annually. They have a large frame, known for their excessive plumage that covers the legs and feet. They lay brown, medium sized eggs. Although Cochins are not great layers, they are known to be one of the friendliest and tame breeds.

Silkie

Silkies lay up to 100 eggs annually. They have a small frame and are considered a bantam breed in some countries. They lay cream, small eggs. They are known for their unusual fluffy plumage and their black skin and bones, blue earlobes, and five toes on each foot. They are very friendly.



WHERE TO PURCHASE BIRDS

Where you purchase birds will depend on what age, sex, breed, and quantity you are looking for. Birds can be purchased from sources such as hatcheries, directly from the breeder, farm supply stores, auctions, shows, or online groups. Hatcheries are ideal if you are looking to purchase a larger quantity of chicks. You will also likely have the option to have the chicks vaccinated for a reasonable cost and they will be sexed. Hatcheries, however, may have a limited number of breeds available so if you are looking to purchase a fancy or rare breed, you may need to source from a local breeder.

Caution must be exercised when purchasing birds from auctions and shows as birds from many sources have potentially been mixed together and there is the possibility of disease transmission.

It is ideal to purchase birds directly from the source where the birds will generally be of better, more consistent quality.

IF YOU ARE ABLE TO SEE WHERE THE BIRDS ARE HOUSED, YOU CAN ASSESS:

- Cleanliness: Does the farm have biosecurity protocols implemented? (see Chapter 11: Biosecurity)
- Overall Flock Condition: Are any birds in the flock exhibiting signs of illness or injury such as:
 - Pale comb and wattles
 - Discharge from the nostrils or eyes
 - Coughing, wheezing, or sneezing
 - Ruffled feathers
 - Mites or lice
 - Limping
 - Abnormal droppings, diarrhea
 - Inactivity, lethargy
 - Lack of appetite

Regardless of where the birds are sourced, they must be quarantined for at least 30 days prior to introducing them to your flock. Birds must be kept in a separate area and observed during this time for signs of disease. Take caution to ensure that you do not cross contaminate equipment and that chores for the isolated birds are completed last, so as not to transfer disease.

CHAPTER 3: GENERAL MANAGEMENT, TIME AND FINANCIAL COMMITMENTS

While chickens are relatively easy to care for, you will have daily, weekly, monthly and seasonal chores to ensure your flock is healthy and well cared for. It is important to be aware of the time and financial commitments required on your part before you decide to raise chickens.

The amount of time spent on daily, weekly, monthly and seasonal chores will vary depending on how many chickens you keep, whether you raise broilers or layers, chicks or mature hens, the set up of your coop, the weather, etc. The approximate time spent below is for a coop in an urban setting with 4-8 layer hens.

DAILY CHORES



Fresh Feed and Water.

Chickens need access to fresh feed and clean water that is not frozen. Feeders and waterers may need to be adjusted based on the birds' height. Broilers and layers require different feed types, depending on their age. Birds may also require access to grit, scratch, and oyster shells. Caution needs to be exercised when feeding birds table scraps, as some foods can be toxic to chickens. Feed and water requirements will be discussed in more detail in Chapter 4.

Open/Close the Coop.

If the birds have outdoor access, then the coop door will need to be opened in the morning and closed in the evening, depending on the weather. It is recommended to close the coop in the evening to protect the birds from predators. This can be done manually or there are automatic chicken doors available with light sensors to open at dawn and close at dusk (see Resources).

Overall Health/Behaviour Check.

Ensure each chicken is eating, drinking, and otherwise behaving normally. This may include body condition scoring individual birds to assess their health status. Handling birds and body condition scoring will be discussed in more detail in Chapter 8. Any injured or sick birds should be segregated from the flock immediately.

Collect Eggs.

Ensure eggs are gathered at least once a day. Egg management will be discussed in more detail in Chapter 6.

Check the Weather.

You may need to make adjustments to the coop, depending on the weather and how your birds are housed. This could include adding tarps, adjusting ventilation and/or temperature, adding bedding material, etc. Weather considerations will be discussed in more detail in Chapter 5.

Turn Lights On/Off.

If you are providing artificial light in the coop, you will need to ensure lights are in good working order and are turned on and off at appropriate times. Automatic timers can be used to simplify this task. Lighting will be discussed in more detail in Chapter 4.



Photo of Normal Chicken Manure:
fishermansdaughter/Flickr

For an urban coop with 4-8 birds, it would be reasonable to expect to spend 15 minutes in the morning and evening.

General Cleaning.

This includes cleaning off the roosts or any heavily soiled bedding, cleaning up any spilled feed or water, changing dirty footbaths, etc.

Dispose of Mortalities.

Any mortalities should be removed immediately. Proper methods of disposal will vary depending on where you live and will be discussed in more detail in Chapter 12.

Record Keeping.

It is recommended to keep records with information such as how many eggs you collected, mortalities, treatments started, etc.

WEEKLY CHORES

Clean and Disinfect Waterers.

This should be done at least once a week using a multi-purpose disinfectant such as Virkon.

Inspect the Coop.

Thoroughly inspect the coop for any evidence of predators or rodents, repairs needed, etc. and act accordingly.

Manage the Litter.

Litter will be managed differently depending on how many chickens you keep, the set up of your coop, where you live, and the season. You may need to add fresh bedding, turn the litter, or change the bedding completely.

Check the Dust Bath.

If a dust bath is provided, it should be checked and changed if needed. Dust baths are typically made up of a combination of peat, ash, sand, and dirt. Diatomaceous Earth can be added for parasite control.

For an urban coop with 4-8 birds, it would be reasonable to expect to spend 1 hour per week.

MONTHLY CHORES

Pick Up Supplies.

Pick up any necessary supplies (feed, bedding material, etc.). You may need to buy feed more often depending on the size of your flock and how much you can store at a time.

Clean the Coop.

Ensure all bedding material is removed and replaced with new bedding. Dirty surfaces and equipment should be cleaned. If an outdoor run is provided, it may need to be raked.

For an urban coop with 4-8 birds, it would be reasonable to expect to spend 3 hours per month.

SEASONAL CHORES

Weather Adjustments.

You may need to make adjustments to the coop when moving into cooler or warmer temperatures. This could include adding heaters, supplying additional water sources, providing shaded areas, adding misters or fans, etc.

Veterinary Care.

Your veterinarian may make recommendations for seasonal treatment of your birds. Always consult with your veterinarian before starting any treatment and follow their directions.

Deep Cleaning the Coop.

2-3 times a year you will need to do a deep clean of the coop. This may be more necessary depending on the type and number of birds you raise. This includes washing, scrubbing, and disinfecting all surfaces with a disinfectant such as Virkon and letting air dry. All bedding material should be replaced. If an outdoor run is provided, it may need to be raked and levelled. For an urban coop with 4-8 birds, it would be reasonable to expect to spend 6 hours deep cleaning the coop.

COST

Costs will vary greatly, with the coop being the largest expense to raising chickens. You may find ways to cut costs and save money, but do NOT do so at the expense of good biosecurity practices and/or animal care practices.

ONE TIME COSTS

Chickens

- Cost will vary depending on age, breed, and quantity. Urban communities that allow chickens generally have an age requirement for hens. Residents who live on acreages with small flocks may choose to purchase chicks. Chicks are the cheapest to purchase although you will need to purchase chick supplies and will be waiting 5-6 months before you are collecting eggs. You can also purchase eggs, but will need to purchase an incubator. Prices for chicks will vary on whether they are mixed, all pullets, or all cockerels, quantity purchased (larger quantities are cheaper), if the birds are being shipped, breed of chicken, and if any services are required (e.g. vaccination). Chicks cost around \$5, while hens cost around \$20, although this can vary widely.

Hatching Supplies

- If you plan on hatching eggs, you will need an incubator. Prices will vary depending on how many eggs it holds, what features it has, etc. Incubators average \$150-\$250.



Chick Supplies

- If you are purchasing chicks, you will need a brooder, a heat lamp, and suitable feeders and waterers. Many chicken owners will build their own brooder out of a Rubbermaid tub or crate. Chicks will need a heat source until they grow feathers. A feeder can be as simple as an egg carton filled with chick starter. Chick supplies average \$50-\$100.

Coop

- The cost of the coop will vary depending on the size and if you build a simple coop or buy a pre-built luxurious coop. A coop can be free, if you can use existing materials, or cost several thousand dollars. Pre-assembled, lightweight coops that are commonly found at farm supply stores are NOT appropriate to house chickens during the winter in Canadian climates. The typical urban coop will average \$1000-\$2000, up to several thousand.

Coop Supplies

- You will need supplies such as a waterer, feeder, lighting, perches, nest boxes for layers, a dust bath, a temperature/humidity sensor, and a heater. These costs will vary depending on how many birds you have and the size of your coop. Coop supplies will average \$250-\$500.

Workshop Fee

- If you live in an urban setting, you may be required to take a class to meet a training requirement as part of the bylaws before you can submit an application to keep birds. Workshop fees will average \$25-75.

Miscellaneous

- If you live in an urban setting, you may be required to submit a Development Permit with your application, with a current Certificate of Title. A Certificate of Title will average \$10-\$20.

Slaughter Equipment

- If you live outside of a town or city and decide to butcher your own birds, you will need equipment such as a large freezer, killing cones, and proper butchering knives. Slaughter equipment will average \$100-\$500.

ANNUAL COSTS

License

- If you live in an urban setting, you may need to pay an annual licensing fee to keep your chickens. A license will average \$25-75.

Liability Insurance

- If you live in an urban setting, you may be required to pay for liability insurance. Insurance coverage will average \$50-\$100, although your insurance company may or may not charge you for this additional coverage.

Vet Costs

- Will vary depending on the services used.

MONTHLY COSTS

Electricity

- This will vary based on the time of year and your coop design. Expect to pay higher costs through the winter months when lighting and supplemental heat are needed. Electricity will average \$10-\$30.

Feed

- Feed costs will vary based on whether you are buying broiler or layer feed, organic or regular, medicated or non-medicated, etc. Additional feed costs include the purchase of oyster shell, grit, scratch, etc. Feed costs will also vary if the chickens have access to pasture in the summer months. Feed costs will average \$20-\$60.

Bedding

- Bedding costs will vary based on type of material you are using, time of year, etc. There are many suitable materials and the availability of each in your area will impact the cost (e.g. straw may be a cheaper bedding type in the prairies). Bedding costs will average \$10-\$30.

MISCELLANEOUS

- Items such as Diatomaceous Earth, pest control etc. Miscellaneous costs will average \$10-\$30.
- For an urban coop with 4-8 birds, it would be reasonable to budget at least \$2,000 on one time costs, \$150 on annual costs, and \$50 on monthly costs.
- For a rural coop with 50-100 birds that is raising chicks, it would be reasonable to budget \$4,000 on one time costs and \$150 on monthly costs. If you live in a rural setting and are selling eggs, you may be able to recoup some of these costs.

CHAPTER 4: BASIC NEEDS



Part of providing good welfare to your flock is to ensure they have ready access to fresh water, a complete diet, and providing an appropriate environment. Whether you have 2 birds or 200, make sure you providing the following basic needs for your birds:

WATER

Fresh, clean water is the most important nutrient you can provide to your flock with a bird consuming twice as much water as they do feed. Extra attention needs to be paid to the bird's water supply in winter and summer. Birds need access to water that is not

frozen (heated) in the winter and cool water in the summer to help prevent them from over-heating. There are heated poultry waterers that work well in winter; a heated pet bowl will also suffice although it may get dirty quicker.

Nipple drinkers and bell drinkers are common in poultry coops. Nipple drinkers are easily adjustable and stay cleaner than a bell drinker. Some nipple drinkers have cups underneath to catch excess water and prevent the litter from getting wet. Nipple drinkers need to be checked often to ensure the lines are not plugged and that water is available. Bell drinkers are easy to set-up in any type of coop, but can become dirty or get the litter wet if they spill. Waterers should be at the height of the bird's head. If you have a flock with different sizes of birds, make sure every bird can access water.

Regardless of the waterer you choose in your coop, it needs to be cleaned often to prevent bacteria from growing and kept free of any debris (litter, feces, feathers, etc.). Birds will not drink water that is excessively dirty. Nipple drinkers should be flushed and cleaned out regularly; bell drinkers need to be scrubbed thoroughly when refilled. Depending on your water source, it may need to be tested to ensure it is safe for the birds to consume.



FEED

Birds require a different type of feed depending on their age, breed, and nutritional requirements. Birds with access to pasture still require a complete, nutritionally balanced feed based on their age. Wild bird feed is not appropriate for poultry. Pet stores do not carry poultry feed, you will need to find a local farm supply store or feed mill.

CHICKS:

Chicks require a starter feed for the first 6 weeks of life that is high in energy and protein. Chick feed can be purchased medicated or unmedicated. For more information on feeding chicks, see Chapter 9: Breeding, Hatching, and Raising Chicks.

GROWING BIRDS:

Young broilers require a grower feed from 6-13 weeks of age, while layers require a grower feed from 6-19 weeks of age. A grower ration will develop the bird's bones and muscles.

ADULT BIRDS:

Adult broilers require a finisher feed from 13 weeks until butchering, to maintain the bird's body weight. If you are feeding medicated finisher feed, you will need to provide unmedicated finisher feed for a period of time to abide by the withdrawal times prior to butchering. Adult layers require a laying ration from 20 weeks onwards, which provides calcium for egg production and maintains the bird's egg production.

Flocks of various ages can be difficult to manage for feeding and should be separated by age and breed as much as possible. For laying flocks with birds of different ages and sexes, a growing ration can be provided and the hens offered free choice oyster shell. Chicks, however, still need to be kept separated and fed starter feed.

OTHER FEED SUPPLEMENTS

Grit

Grit can be provided free choice to the birds to help grind and digest the feed, but it is not necessary if the birds are being fed a complete feed. Grit should not be fed to chicks under a week old.

Oyster Shell

Oyster shell should be provided free choice to laying birds, as it contains calcium to help with eggshell strength.

Scratch

Scratch is a mixture of different grains and needs to be fed in conjunction with a nutritionally balanced feed. Scratch is usually a treat reserved for winter, as it helps raise the bird's internal body temperature. It should be fed in the evening so the birds can digest it through the night. Feed scratch sparingly; only feed the birds what they will consume in 10-15 minutes.

It is recommended to purchase commercially prepared complete feed, rather than to try to make it yourself. Commercially prepared feed has been formulated by a poultry nutritionist to ensure it is balanced with the correct proportions of vitamins and minerals. Most poultry feed will be provided as a crumble or a pellet. Pellets are more expensive, but are formulated to be uniform and digestible, ensuring the bird is eating a balanced diet.

Generally, birds can be free-fed because they are quite active and don't tend to overeat. Birds will consume more feed in the winter to stay warm. Layer and dual-purpose breeds need to be monitored regularly to ensure they stay in optimum body condition. Provide any treats in moderation and watch the amount of table scraps you feed your birds. Some table scraps are toxic to poultry including avocado, beans, chocolate, garlic, onion, and mushrooms. Some wild plants are toxic to poultry as well, and caution needs to be exercised for birds that have access to pasture. See Chapter 8: Handling and Body Condition Scoring for how to body condition score your birds.

The ideal poultry feeder discourages the bird from sitting in or on top of it, so the feed stays clean. Hanging feeders are common and are easy to adjust based on the bird's height. Feeders made out of PVC pipe are popular as they minimize any feed wastage, deter pests and wild birds, and can be easily made. The size and number of feeders you need will depend on how many birds you have in your flock. Keep the feeder at the height of the bird's crop. If you have a flock with different sizes of birds, make sure every bird can access feed.

Ensure any spilled feed is cleaned up immediately and stored in pest proof containers.



AIR QUALITY

Ensuring proper ventilation in your coop will minimize dust, any harmful gases, and provide fresh air. Keeping the litter dry will minimize the risk of disease and ammonia from building up. Ammonia can be tested using inexpensive test strips found at your local farm supply store. For more information on ventilation, see Chapter 5: Designing and Constructing a Coop.

TEMPERATURE

It is important that you manage temperature and humidity in your coop to provide a comfortable environment for the birds. You may want to consider adding a weather station in your coop so that you can monitor the temperature and humidity and make necessary adjustments.

Humidity should be ideally kept around 50%. Birds are continually adding moisture to the coop through their feces or by exhalation, and ventilation is necessary to ensuring this moisture is able to escape. Too low of humidity will create dusty conditions and potentially respiratory problems; too high of humidity can lead to wet litter, ammonia, and cause frostbite even in mild winter conditions. Wet litter creates an ideal environment for bacteria to proliferate.

Chickens generally do well in winter provided they are given a dry, well-ventilated, draft-free, and warm shelter. There is no exact temperature to maintain in the winter and depends on the breed. Breeds suitable for Northern climates will spend time outside even in temperatures as low as -10°C. An electrical heat source may be needed in cold climates and is covered in Chapter 5: Designing and Constructing a Coop. Providing heat to chicks is covered in Chapter 9: Breeding, Hatching, and Raising Chicks.

Chickens, especially broilers, are prone to heat-stress and summer temperatures can be harder on them than the winter. When temperatures start to exceed 25°C, you will need to provide additional ways for your birds to stay cool. If your birds are panting, spreading their wings, are lethargic, are eating little to no food, or are not laying eggs, they are too warm.

WAYS TO KEEP YOUR CHICKENS COOL:

- Always have cool water available
- Add electrolytes to the water to prevent further dehydration
- Provide good air flow; cross ventilation is ideal. You may want to consider adding a fan
- Provide frozen water bottles for the chickens to lay up against
- Provide shade using a tarp
- Use misters
- Avoid feeding scratch in the summer as this generates body heat
- Spray around the coop and on the roof with cold water to provide evaporative cooling

LIGHTING

Lighting is especially important in layers, as it influences egg production. Broilers also require light to ensure they are eating and growing properly. Lights should be on an automatic timer to ensure consistency.

Broilers require light so they are stimulated to eat, as they will not eat in the dark. For the first 3 days of life, provide broiler chicks with 23 hours of light and 1 hour of dark. After the first 3 days, decrease the light 1 hour a day until you reach 16 to 18 hours of light a day. Maintain this schedule until they are ready to be butchered.

For the first 3 days of life, provide layer chicks with 23 hours of light and 1 hour of dark. After the first 3 days, decrease the light 1 hour a day until you reach 10 hours of light. At 20 weeks of age, you can start increasing the length of the light by 30 minutes daily until you reach 15 hours. More information on providing light to layers can be found in Chapter 6: Egg Management.

For coops with no access to natural light, make sure the light intensity is bright enough so you can read a newspaper. This will ensure the birds can find feed and the nest boxes. For coops with access to natural light, your lighting schedule will need to be adjusted throughout the year as the day lengths shorten and lengthen. You will need to provide your birds with supplemental light in the fall and winter months when the day length shortens.

LED lights are ideal in a chicken coop as they last longer and are also energy efficient.

SPACE

Most small flock or backyard chicken owners will have a coop with outdoor access for their birds. Urban chicken keepers should check with their local legislation as they will be required to provide a specific amount of interior and outdoor space for the birds. Chickens will be happier with more space, but any buildings larger than 100ft² in Alberta require a building permit.

Ensure the birds have ample space to engage in normal activities such as dust-bathing, nesting, roosting, scratching, etc. As birds live in flocks, keep at least two birds. Urban chicken keepers should check with their local legislation for bylaws around how many hens they can keep.

Birds that are too cramped may develop behavioural issues such as feather pecking. At least 4ft² of indoor space and 10ft² of outdoor space should be provided for every bird. Bantam breeds don't need as much space due to their small size; neither do broilers as they are not as active as layers or dual-purpose breeds.

If birds are housed in cages, ensure the birds have ample room to walk, spread their wings, and have the appropriate height for their heads. Keep at least two chickens in each cage, unless they are being kept separate for quarantine or are injured. Chickens kept in cages should be given at least 2ft² of floor space.

LITTER

There are many types of litter material available and advantages and disadvantages to each type. What is most important is that the material is not toxic to the birds, is absorbent, is readily available, and is cost efficient.

- **Shavings:** Shavings provide good odour control, are absorbent, readily available, and inexpensive. Avoid using cedar shavings as they may bother the bird's respiratory system.
- **Straw:** Straw is readily available and inexpensive, but if ingested can cause the crop to be impacted, may cake over, and can be dusty. It is not very absorbent.
- **Sand:** Sand is easy to clean, does not cake, lasts a long time, is not dusty, and discourages bacterial growth. It is also good for dust bathing and is cool in the summer and retains heat in the winter. It is, however, heavy to move and is not very absorbent.

Provide ~1-2 inches of litter in the summertime and 4-6 inches in the winter.

Paper should be avoided as it can become slippery and the ink may be toxic to the birds. Sawdust should also be avoided as it is very dusty.

Regardless of what type of litter you use, it is ideal to install a dropping board under the roosts to catch the manure from the night and reduce the amount of litter required. Layers should be provided with clean nesting material in nest boxes that keeps the eggs cushioned and prevents them from rolling around. Hens prefer deep bedding in the nest boxes that they can rearrange as they lay their eggs.

Chicken coops can generate a lot of waste, both manure and bedding. Check with your municipality for how to dispose of it properly. Your local landfill may accept it for a nominal fee.



CHAPTER 5: DESIGNING AND CONSTRUCTING A COOP

When designing a coop, a number of factors must be considered first such as: will the chickens be kept over winter, number of hens, available space, etc. All of these factors and many more will guide your design decisions.

Prior to constructing any coop or accessory buildings, you should consult your local bylaws and Canadian building codes to determine what permits (if any) are required as well as acceptable construction techniques. If any ground disturbance or excavation is to take place, a locate request should be submitted through Alberta One Call at least two full working days before you plan to dig to identify the location of any underground utilities. Visit their website at <http://albertaonecall.com/> or phone them at 1-800-242-3447 for further information.

LET'S GET TECHNICAL: KEY COOP DESIGN FACTORS FOR A HEALTHY FLOCK

There are three key factors to consider when designing your coop: size, temperature, and ventilation.

SIZE

Most local bylaws for Urban Chickens will specify a minimum size required for both indoor and outdoor space. If they don't, you should design your coop such that you have at least 0.37m² (~4ft²) of indoor space for every bird and 0.92m² (~10ft²) of outdoor space for every bird. Going larger than this is preferred if you have enough space. However, in most municipalities buildings over 9m² (~100ft²) are generally considered accessory buildings and will require a building permit. Be sure to consult your local bylaws prior to beginning construction.

TEMPERATURE

If you only plan to have hens from spring to fall, then a lightweight non-insulated chicken coop will more than suffice. This type of coop can be readily purchased from many farm supply stores already built or come as part of a package with the rental hen option described later in this chapter.

However, if you plan to keep your hens throughout the winter, then this style of coop will not work and a more permanent shelter must be built. There is no exact temperature that must be maintained in the coop and each breed of chicken has a different tolerance to the cold. However, generally speaking the coop should not feel warm to you on a cold winter day. A safe target to aim for is 0oC to -10oC, depending on the breed.

There are two main sources of heat loss that must be designed against: Radiant/Conductive heat loss and Air Movement.

Radiant/Conductive heat loss occurs when warm objects come into contact with cold objects. The two temperatures will attempt to equalize, bringing the temperature inside of the coop down to the same temperature as the ambient air. Conductive heat loss can be slowed and minimized by using insulation.

Coops should be constructed at a minimum with 2x4 stud walls and insulated with either fiberglass insulation or mineral wool insulation. Mineral wool insulation has a higher R-Value per inch (measurement of the resistivity of heat transfer) than fiberglass and is also completely permeable to moisture, meaning that it will not become damaged by water and moisture like its fiberglass counterpart. It is composed of upwards of 75% recycled material compared

with 20% for fiberglass insulation. However, it is more expensive. There are many other forms of insulation such as Expanded and Extruded Polystyrene, Spray Polyurethane Foam, Polyisocyanurate, etc. Each form of insulation has its positives and negatives, it is recommended that you research each type and choose the form that best fits your direct application and budget. Regardless of which type of insulation you decide to use in your coop, it must be covered and protected from the chickens or they will attempt to eat it.

Just like humans, chickens are susceptible to wind chill effects. It is important to keep the inside of your coop as draft free as possible. Use weather stripping around doors, spray foam around window casements, wrap the outside of the coop in a house wrap product and tape the seams. To attract heat during winter days, use black or dark colored shingles and place windows on the south side of the coop. Construct the coop in a location that will get the morning sun while minimizing the amount of hot summer afternoon sun that the coop will see to help reduce the chance of the hens overheating in the summer.



Use wide roosting platforms, such as a 2x4 with the wide side up. This allows the chickens to squat on the roosts and cover their feet with their feathers, reducing the chance of frostbite



Install a "roof" or structure over the roosting platforms, which helps provide draft/current free air over this area

THERE ARE A FEW OTHER SMALL DESIGN CONSIDERATIONS TO TAKE INTO ACCOUNT WHEN DESIGNING A COOP FOR THE WINTER MONTHS:

If you notice that your hens are huddling in one place all day long, moving slowly, or reluctant to move, then you will need to add a supplemental heat source. For a small urban coop a zero-clearance flat panel radiant heater will work in most cases. Heat lamps should be avoided if at all possible as they are a severe fire risk. If you have no other choice but to use a heat lamp follow these rules:

- Hang the lamp with two chains attached to the lamp in two separate spots and to the structure in two separate spots. This way if one fails the other will stop it from falling
- Follow the manufacturer's specifications for minimum distances to combustible materials. This normally ranges from 18-36 inches depending on how large the bulb is
- Use a guard over the lamp to stop chickens from hitting it and getting burned or causing a fire

VENTILATION

Adequate ventilation is a must in the winter. Chickens can get frostbite even at mild temperatures if the moisture content in the coop is too high. In addition, ventilation is required to allow the ammonia from the chicken manure to escape the coop. During the winter, if you start to see condensation or ice forming on your coop windows, then you need to consider adding more ventilation. For small coops, passive ventilation is the best option.

Passive ventilation consists of having openings (vents) at the highest points on the walls of your coop. Due to the natural air currents, the warmest, and most moist, air will escape. As air warms, its ability to retain moisture increases. Likewise, as it cools its ability decreases, which is why you get frost on your windows. As the hot, moist air rises it will leave the coop through the vents controlling the humidity inside.

Passive ventilation can be achieved in many ways but it is best if the vents are placed on at least 2 different sides of the coop and designed so that they can be closed or are placed on a sheltered side of the coop where they will be protected from driving rains and snow. On extremely cold nights, resist any temptation to close the vents to preserve heat; closing the vents will do more harm than good as you trap the moisture and increase the risk of frostbite.



Examples of Passive Ventilation:

On Right: Vents are placed on the peak of the roof

On Left: Air Diffusers are used as covers for the ventilation and the vents are protected by the roof overhang

COOP NECESSITIES

In addition to a warm dry space in the winter, there are a few other things that every coop must have.

- Windows
- Roosting platforms/bars
- Nest boxes

WINDOWS

Windows in your coop are important for a multitude of reasons. They can be used as additional ventilation (if required), allow sunshine to help heat the interior, allow a cooling breeze in the summer, and provide light, which is required for egg production. If possible, windows should be placed on the south east and west exposures to maximize the amount of sunlight they receive.

ROOSTING PLATFORMS/BARS

Roosting platforms are required in every coop and should be made as wide as possible to allow the hens to squat down on them and cover their feet with their feathers. Local bylaws may specify how many perches or how much roosting space is required in each coop, but if not you should provide a minimum of 30 cm (~12 inches) for every bird. It is also preferable to have the roosting platforms higher in elevation than the nest boxes to encourage the chickens to sleep on the roosts rather than in the nests.

NEST BOXES

Nest boxes are used by the hens to lay their eggs. Most municipalities will have regulations around how many nest boxes are required. Nest boxes are covered in more detail in Chapter 6.



PREDATORS

Chickens can fall prey to many wild and domestic animals such as foxes, coyotes, owls, hawks, weasels, cats, and dogs to name a few. Your best defense is a well-built and secure coop and outdoor run. You should use a galvanized wire mesh with openings no larger than a half inch by a half inch on the walls and roof of your outdoor run. The mesh should be extended a minimum of eighteen inches below ground, or the entire floor of the outdoor run will need to be covered with it to stop predators from burrowing under. Contrary to its name, chicken wire should not be used, as it is not strong enough to deter an attack from a large predator.

You should keep your birds contained and closed in at night. The pen should be kept clean and spilled feed needs to be removed, so that you are not attracting predators.

RENTAL HEN OPTION

There are rental hen businesses that provide you with the option to rent everything you need to keep chickens for a season. In the spring, they will deliver hens (number dependent on your local bylaws), a lightweight coop, feeders, waterers, and enough feed, oyster shell, and grit for the season. The hens and supplies will be picked up in the fall (the end of the rental season).

This is a terrific option, especially for residents located in an urban community, who would like to try keeping chickens before committing long term. There is no need to set up a permanent coop or worry about over-wintering the birds. The companies also provide you with a new hen should one of the hens stop laying, become broody, become sick or injured, or die. They provide care information and support during the rental period.

Prices vary, depending on the package you select, and will average \$500-\$600 for the season.

CHAPTER 6: EGG MANAGEMENT

If you are raising chickens, it is likely because you want eggs! Around 6 months of age, a dual purpose hen will begin to lay. This will vary depending on breed (generally smaller breeds lay earlier while larger breeds lay later), lighting and environmental conditions, health, stress, and nutrition. Eggs can come in a variety of colors, sizes, and shapes. The majority of dual purpose breeds lay brown eggs.

How many eggs you can expect to collect from your chickens will depend on the breed. Breeds that have been selected for egg production will lay around 5-6 eggs a week. Dual purpose breeds will lay 4-5 eggs a week. Fancy or bantam breeds are often selected primarily for ornamental purposes (for example, feather color) and will lay around 2-3 eggs a week. Hens typically lay eggs in the morning.



When birds are starting to lay, the eggs will be small in size. As the bird matures, the egg size will increase to the normal size for the breed. Chickens will reach their peak of egg production around a year of age, at which point they will slowly start to decline in egg production. Some flock owners still report collecting eggs from hens that are several years old. It is not uncommon for hens to live several years, especially in backyard settings where they are often well protected from predators.

You will need to be prepared to make a decision once your birds stop laying eggs. Many backyard and small flock owners become attached to their hens and opt to let them live out their natural life, while adding younger birds so they continue to get eggs. This may be more difficult to do if you live in an urban municipality where

you are limited on how many hens you can keep. Other options include re-homing your bird to a farm, having your bird butchered, or humane euthanasia.

There are several management practices you should follow to ensure you are achieving optimal egg production from your hens and handling the eggs properly.

LIGHTING

The amount of light available to the hen is very important in egg production. Hens require ~15 hours of light a day to lay. Hens will naturally decline in egg production or stop altogether in the fall and winter months when the day length becomes shorter. If you would like to keep your hens laying eggs during the colder months, you will need to provide supplemental lighting. Some flock owners choose not to provide lighting during the fall and winter months, and let their hens have a rest period.

- It is recommended to provide lighting at the start of the day. Chickens are easily able to adjust to the lights suddenly coming on in the morning, especially if you are using a dimmable bulb that can gradually increase in light intensity. Chickens have poor night vision though and will become disoriented and stressed if the light suddenly turns off in the evening. They may have difficulties finding their roost for the night.
- It is ideal to have the lights controlled by a timer, in case you are not able to go out to the coop at the same time every day.
- You can calculate when to have the lights come on by determining when the sun sets in your area and

subtracting 15 hours. For example, if the sun sets at 8 PM the lights should come on at 5 AM. The light only needs to stay on until the sun rises.

- You will need to modify what time the light turns on and off every few weeks throughout the fall and winter months as the day length changes, unless the birds are housed indoors at all times.
- Birds should be given a dark period of 6-8 hours every 24 hours to rest.
- Depending on the size of your coop, you may need multiple lights.
- Light bulbs should be located close to the centre of the ceiling to distribute light evenly in the coop and should be covered with a wire guard so they don't break. They should be well secured in the socket so they do not become loose.
- A low wattage light bulb (25-40 watts) will generally provide enough light to keep the birds laying in the colder months. It is recommended to use a bulb specifically designed for poultry housing. You can purchase LED bulbs that are dimmable, waterproof, and dustproof. More information can be found in the Resources section of this manual.

NEST BOXES



You will need to provide 1 nest box for every 3-4 chickens. If you do not have enough, you may find birds will fight over nest boxes or lay eggs on the ground. Birds will naturally share the same nest box. If you have room, you can provide 1 nest box per bird, although some nest boxes likely will not be used. If you reside in an urban municipality, there may be bylaws in regards to how many nest boxes you need to provide in your coop.

Nest boxes need to be managed properly so that the birds use them for the sole purpose of laying eggs. If the birds are using nest boxes to excrete waste in, it will become dirty. The cleanliness of the eggs is related to maintaining a clean nest box and coop.

- Allow the birds access to the nest boxes only once they have reached laying age (~6 months of age) to discourage the birds from soiling in the nest boxes.
- Depending on the age of your birds, you may need to train them to use the nest boxes. You can do so by:
 - Immediately moving a bird that is attempting to lay an egg outside the nest box to inside the nest box. A bird that is attempting to lay an egg will appear to be seeking out a dark area of the coop.
 - Picking up any floor eggs.
 - Placing a golf ball or ceramic egg in the nest boxes to encourage the birds to use them.
- Ensure the chickens have access to roosts that are placed higher than the nest boxes to discourage them from sleeping in them. Chickens prefer to roost as high as possible.
- Make sure nest boxes are of an appropriate size with clean, comfortable bedding. Bedding material should be 3-4" deep and should be kept clean to help the eggs stay clean. The bird should be able to stand up and turn around in a nest box. A typical nest box size is 12" X 12" X 12", but may need to be modified depending on the size of the bird. Nest boxes that are too big will encourage more than one chicken to be in the nest box at a time and can lead to broken eggs.
- You can purchase nest boxes, build one yourself, or use existing items such as milk crates or litter boxes. Nest boxes can be square or round in size. Nest boxes that are plastic or metal are easier to keep clean than wood.

- Nest boxes should be located in a draft-free area of the coop.
- Birds naturally prefer to lay eggs in nest boxes that are in a quiet, dark area of the coop. You may want to consider hanging curtains up in front of the nest boxes to keep them dark.
- Nest boxes can be stacked one on top of another, but should not be higher than 3-4 feet off the ground. Nest boxes that are higher than a foot off the ground will need a perch in front of them for the birds to land on before they enter the nest box.

You will need to pick up eggs frequently, at least once a day. This discourages hens from becoming broody or eating eggs. Both of these behaviours can be difficult to stop in a chicken once they have started and are discussed in more detail in Chapter 7. In extreme weather conditions, eggs should be picked up 3-4 times a day. Eggs that sit too long in hot weather may start to grow bacteria especially if they are in direct sunlight; eggs that sit too long in cold weather will freeze.

ISSUES AROUND EGG LAYING

PROLAPSED VENT

It is not uncommon to find blood on an egg; however you will want to check the hen to make sure she does not have a prolapsed vent. A prolapsed vent can be caused by large eggs, in young birds that have just started laying, older hens, obese birds, or if the birds have a nutritional deficiency. Some breeds are more prone to prolapse than others, and it can be a recurring condition.

A prolapsed vent is when the hen's reproductive tract is pushed outside of the vent. Other birds in the flock may be attracted to the exposed tissue and it can become bloody if they peck at it. A prolapsed vent is a serious condition, but if it is caught early on it can be treated.

Wearing gloves, carefully wash the vent in warm water. You can gently re-insert the exposed tissue with lubricant. Keep the bird separated from the rest of the flock for a week and check the vent frequently to ensure it has not prolapsed again. If you are not successful re-inserting the tissue or the vent continues to prolapse, contact your veterinarian immediately.



Photo: Roberto Soares/Ceva Animal Health

EGG BOUND

A chicken that is egg bound has an egg stuck inside of her oviduct. Egg binding is common with large or misshapen eggs, in birds that are prematurely laying, obese birds, or if the birds have a nutritional deficiency. A chicken that is egg bound may be lethargic, stop drinking or eating, or appear to be straining. Manure may be loose or absent altogether. This condition can be fatal, and you should contact your veterinarian immediately.

MEAT OR BLOOD SPOTS

Meat spots are small pieces of body tissue from the hen. They are generally seen in the albumen (the egg white). This is more common in older birds. Eggs with meat spots are still safe to eat. If you like, you can remove the meat spot out of the egg with the tip of a knife.

Blood spots can happen in an egg when a blood vessel breaks in the hen's reproductive tract. They are generally seen near the yolk. This can be caused by the hen's diet, age, or stress. Eggs with blood spots are still safe to eat and are not

an indicator that the egg has been fertilized. If you like, you can remove the blood spot out of the egg with the tip of a knife. Blood spots are related to genetics, and are more common in birds that lay brown eggs compared to those that lay white eggs.



Photo (Left to Right): Roberto Soares/Ceva Animal Health, Roger Connolly

You will rarely find eggs with meat or blood spots that you purchase from the grocery store, as these eggs have been candled and are removed if found. Candling is the process where an egg is rotated in front of a bright light source so the contents can be inspected.

PROPER EGG HANDLING

The first step in food safety is the production of clean eggs.

IT IS IMPORTANT TO HANDLE EGGS SAFELY BY:

- Keeping the nest boxes clean by removing any feces daily.
- Washing your hands thoroughly before and after coming in contact with the eggs.
- Using a separate bucket for dirty eggs you collect from your coop. Eggs that are very dirty (with spots larger than a quarter in size) should be discarded.
- Discarding any eggs that smell bad, have a thin shell, or are cracked as they may be contaminated with bacteria.
- Removing any fecal matter, shavings, and feathers from the egg.
- Washing the eggs with an egg wash following the manufacturer's instructions.
- Washing the eggs in 41°C (106°F) water to prevent bacteria from entering the egg.
- Not washing your eggs in your kitchen sink where you are preparing food, as eggs may have organic material on them.
- Storing eggs in a cool, dry place or in your fridge with the pointy end down. Eggs stored in the refrigerator should be dry first. Eggs should be stored in a clean carton.



- Discarding any eggs older than 6 weeks.
- Washing all utensils, surfaces, dishes, and cutting boards thoroughly before and after coming in contact with raw eggs.
- Cooking foods containing eggs to a minimum of 72°F. For more information on cooking guidelines visit: www.eggs.ca

If you are administering any medications to your hens, make sure you read the label directions on when it is safe to consume the eggs again.

REMEMBER, IF YOU ARE PLANNING TO SELL EGGS IN ALBERTA YOU



MUST MEET THE FOLLOWING FIVE CONDITIONS:

- The eggs must be produced on the flock owner's own farm.
- The eggs must be sold to the end consumer.
- The eggs must be clean and have no visible cracks or leaks.
- The eggs must be kept in the flock owner's possession at a temperature that does not exceed 7°C. Eggs should be held in a cooler that can maintain a cool temperature.
- The eggs must be packed under sanitary conditions in clean containers that are legibly marked with the word "UNINSPECTED" in letters at least 2 centimetres tall.

Urban communities have regulations that prohibit selling of the eggs. As an urban chicken owner, eggs are for your personal use only.

CHAPTER 7: WELFARE AND BEHAVIOR

We have a responsibility to provide the animals in our care with a high state of animal welfare.

ANIMAL RIGHTS VS. ANIMAL WELFARE

ANIMAL RIGHTS:

Is a philosophical view that animals have rights similar to or the same as humans. True animal rights proponents believe that humans do not have the right to use animals at all, not even as pets.

ANIMAL WELFARE:

Supports the belief that humans have a right to use animals for purposes such as food (for example, raising chickens for eggs or meat), but also have a responsibility to treat them humanely.



FIVE FREEDOMS

The Five Freedoms outline five aspects of animal welfare that poultry keepers can control to ensure their birds (and any other animals in their care) are well cared for:

Freedom from hunger or thirst.

By providing ready access to fresh water and a diet to maintain full health and vigour.

Freedom from discomfort.

By providing an appropriate environment including shelter and a comfortable resting area.

Freedom from pain, injury, or disease.

By prevention or rapid diagnosis and treatment.

Freedom to express normal behaviour.

By providing sufficient space, proper facilities, and company of the animal's own kind.

Freedom from fear and distress.

By ensuring conditions and treatment which avoid mental suffering.

A backyard chicken keeper or small flock owner may struggle with the decision to euthanize one of their birds. Remember that it is not practicing good animal care to let a bird suffer with an injury or illness, and euthanasia may be the most humane decision you can make.

For more information on euthanasia considerations, please see Chapter 12: End of Life Plans.

INNATE BEHAVIORS

Chickens have several innate behaviours that you will witness in your flock. Understanding some basic information about chicken behaviour can be helpful when caring for a flock.

Providing opportunities for roosting, scratching, and dust-bathing will ensure your flock is able to express these natural behaviours. If you live in an urban municipality, you may be required by the bylaws to provide such opportunities.

PECKING ORDER

Chickens have an established social hierarchy within the flock with every member having a place. Chickens will start establishing the hierarchy as chicks and this will continue until the pecking order is established as adults. Chickens recognize other individual birds in the flock. The addition of new birds must be done very slowly and carefully, otherwise the birds may attack and injure the new flock member. Roosters are always the dominant birds in the flock. As flock size increases, chickens become more accepting of new flock members.

When you are introducing new birds to the flock, make sure that they are quarantined first and observed carefully to avoid introducing any diseases to your existing flock.

For more information on introducing new birds to your flock, please see Chapter 9: Breeding, Hatching, and Raising Chicks

GROOMING

A chicken will spend a considerable amount of time during the day grooming itself, by running its feathers through its beak. This helps to spread oil, produced from the preen gland near the tail, over its feathers. Hens will spend more time grooming themselves than roosters.

PECKING AND SCRATCHING

Chickens will spend at least half of their time pecking and scratching. Pecking is an exploratory behaviour to find possible food sources, drink, mate, groom, and communicate with one another. Even chickens that have access to a complete feed ration, will still continue to peck to find possible food sources.



NESTING

Nest boxes will appeal to the natural instinct of a layer chicken if they are in a dark, private area of the coop where the hen feels secure. Hens need to be taught to use nest boxes when they are young, otherwise they may lay eggs on the floor, which can become dirty or broken. For more information on training hens to use nest boxes, please see Chapter 6: Egg Management.

In the early morning, hens will seek out a nest and start manipulating the bedding with their beak. Once the egg has been laid, the hen will make a cackling noise that the other hens may join in on.



DUST-BATHING

Chickens clean themselves by dust-bathing, the act where they roll around in dirt to clean their skin and feathers. This helps to control parasites. You can provide your birds with a dust-bath filled with a combination of peat, mulch, wood ash, sand, and/or dirt. Adding Diatomaceous Earth can further help with parasite control. If you do not provide your chickens with a dust-bath they will make one themselves by digging out a hole in the dirt.

PERCHING AND ROOSTING

When given the opportunity, chickens will often choose to rest on something that is off of the floor. Providing perches in your coop may be a way to decrease aggression, as the birds are able to get away from the others.

Chickens have a natural instinct to roost, seeking out a high spot they can settle in for the night. Chickens will typically move to their perches 30-60 minutes before the sun sets. Perches should be placed higher than the nest boxes, but not higher than 3 feet or there is a risk that the birds could become injured. Chickens like to roost in the same spot every night and will typically roost with the other flock members. As broilers are bred to be heavy birds, they will typically not use a roost but will sleep on the floor. The most dominant chicken in the flock will generally roost on the highest perch.



MOULTING

Moulting is a natural process in both hens and roosters where the older feathers are replaced with new ones. This occurs annually, usually at the end of summer or in the fall as the days start to get shorter. A chicken will experience its first molt when it is around 16-18 months of age. During this time a hen will stop producing eggs and her reproductive tract regresses.

Photo: Roberto Soares/Ceva Animal Health

Timing, duration, and what the chicken looks like during the moult will vary from bird to bird. Moulting takes considerable energy and protein on the bird's behalf to re-grow the feathers; therefore it is important to make sure your birds are being fed a proper feed ration during this time.

UNDESIRABLE BEHAVIORS

FEATHER PECKING

As chickens have an established pecking order, some feather pecking at lower-ranking members in the flock is normal. If a bird draws blood from another, make sure to act quickly as the other birds may continue to peck at that bird until it is seriously injured or dead. Any bird that is injured needs to be separated from the flock immediately. Birds are generally more tolerant of other birds that are the same size and age as them. You can also provide enrichment for the birds to re-direct their behaviour, including providing a dust bath, hanging a food source such as a head of cabbage or bunch of kale, providing a Chicken Swing or other high areas for the birds to perch, scattering scratch in their bedding, leaving music playing for them, etc.

Feather pecking is less of a problem in flocks that are fed a proper diet and are not in crowded housing conditions. When given enough space, lower-ranking members in the flock can avoid other flock members. Feather pecking can also be caused by excessive noise, genetics, weather conditions, stress, hunger, boredom, or not enough nest boxes.

POOR EGG PRODUCTION

Usually poor egg production in a flock is related to management. If your birds are not laying, consider the following:

- Is the hen too young or too old? Different breeds of chickens start laying at different ages, although most will typically start laying around 6 months of age. Be patient if you are waiting for birds to begin laying. Birds will peak in production around 1-2 years of age and will start to decline after that.
- Do you have a hen or a rooster? It can be difficult, especially in younger birds, to sex them properly. To help determine what sex of bird you have, please see Chapter 2: Basic Chicken Breeds.
- Are the birds getting ~15 hours of light a day? Layers require ~15 hours of light a day to continue laying in the colder months when the day length naturally decreases. You may choose to add additional lighting to your coop during these months to keep your birds laying.
- Are the birds stressed? If the birds are stressed, they will likely stop laying. Stressors can include environmental conditions or adding a new bird to the flock. Once you eliminate the cause of stress, the birds should start laying again.
- Are the birds sick? Hens in poor nutritional or health status will not lay. Ensure you are feeding your birds a commercially prepared laying diet. As birds are a prey species, they are adept at hiding how sick they really are. A decline in egg production could be a sign of disease. For more information on health problems and disease, please see Chapter 10.

BROODINESS

A broody hen is one that is determined to sit on and hatch eggs, regardless of whether they are fertile or not. Hens can become broody even when there is no rooster in the flock. Some breeds of hens are more susceptible to becoming broody than others. Breeds that have been bred for high production are less likely to become broody than some dual purpose breeds. When a hen becomes broody, she will stop laying eggs and will often not leave the nest box, except to eat or drink. A hen can become protective and aggressive during this time, and may be difficult to handle.

It can be difficult to break a hen of being broody and she may go back to being broody at a later point. Ensure you collect the eggs often, every few hours if possible. Many hens will stop being broody and return to normal egg production. If the hen continues to sit on the eggs and you are not overly concerned with egg production, give the hen 21 days (when the eggs would have hatched) and she will often return to normal. If you do have a rooster in the flock, you could let her hatch the eggs at which point she will return to normal.

Some flock owners have had success with placing a broody hen in an "anti-broody" area of the coop. This can be a wire cage with food and water, but a nest box is not available. Usually within a week, the hen will stop acting broody.

BREAKING AND EATING EGGS

A bird that is breaking and eating eggs can quickly spread the behaviour to other birds in the flock that will then mimic the behaviour. This behaviour is less likely when the birds are given ample space.

Make sure you clean up any broken eggs immediately and do not feed raw eggs to your birds in order to prevent them acquiring a taste for it. By feeding a commercially prepared diet and providing oyster shells, your birds will be getting all the nutrition they need and are less likely to be interested in eating eggs. Ensure eggs are collected often. You can also try to deter a bird from breaking and eating eggs by placing plastic or ceramic eggs in the nest box.

CHAPTER 8: HANDLING AND BODY CONDITION SCORING

Handling your birds is an important skill to have in order to assess their overall well-being. It will also be much easier to move the birds, should the need arise, if they are used to being handled.

HOW TO PICK UP A BIRD

Some breeds tend to be more docile and easier to pick up than others. Remember to always wash your hands before and after handling your birds.



- Spend time with your birds regularly. They will come to trust you as they get to know you. You can build trust by encouraging them to eat out of your hand while you slowly stroke their feathers.
- Approach the bird in a crouching position and move slowly to pick it up. If the bird is becoming stressed, stop and try again later.
- Talk quietly and calmly. Loud noises and large movements can stress the birds.
- Pick up the bird quickly and firmly, holding the wings at their side so they cannot flap. Holding the bird close to your body will give them a sense of security.
- Keep the handling sessions brief, but frequent. Over time the birds will become used to being handled and it will be less stressful for them (and you!).
- If you get your birds as chicks and handle them often, they will be tamer as an adult. Use two hands to hold the chick. Take care to not squeeze the chick and ensure you are holding the chick no more than a few inches from a surface in case they should fall.
- If you are still having trouble picking up your birds, try in the evening once it is dark and the birds are roosting on their perch. As birds have poor night vision, you should be able to easily pick them up.
- You can also try wrapping your bird in a large towel with the wings securely at their side so they cannot flap. This helps keep the bird calm.

Once you are able to handle your birds, it is important to assess their overall well-being on a regular basis.

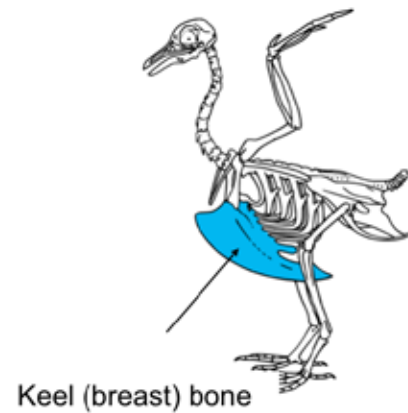
OVERALL HEALTH CHECK – WHAT TO ASSESS:

- Feather Cover: Are the feathers evenly covering the body? Are there signs of feather picking?
- Eyes: Are the eyes round, bright, and wide open?
- Vent: Is the vent area clean? Are the droppings in the coop well-formed?
 - Manure in a healthy bird should be a shade of brown, semi-solid in consistency with a white cap. The solid part is the fecal matter; the white cap is urates. If you notice blood in the droppings that could be indicative of disease and you should contact your veterinarian.
- Feet: Are the feet clean with no deformities? Does the bird need its toenails trimmed?
 - Most chickens will normally wear down their toenails, however some may need their toenails trimmed similar to a dog or a cat's.
- Nose/Eyes/Ears: Is discharge present?
 - Discharge present in the nose, eyes, or ears may be indicative of disease, especially if the bird has other symptoms.
- Beak: Does the beak have any abnormalities or is it overgrown? Are there any injuries?
 - Birds with beaks that have abnormalities (for example, crooked or crossed beaks) may need to have their beaks trimmed to help the bird eat and drink. Depending on the severity of the injury to the beak, the bird may need to be seen by a veterinarian.
- Crop: Check the birds crop to ensure it is eating and drinking
 - A chicken's crop is located to the slight right of the breast muscle. Food is stored here before it moves into the stomach. The crop will feel full after the bird has eaten.
- Injuries/Parasites: Examine the bird for any injuries or parasites, such as mites or lice.
 - Signs of mites or lice are decreased bird activity, a change in appetite, a drop in egg production, weight loss, bald spots, redness on the skin, and visible, crawling bugs on the skin.
- Behaviour: Is the bird eating, drinking, and otherwise behaving normally?



BODY CONDITION SCORING

As part of an overall health check, you will want to assess your birds' body weight and condition. This is a useful tool that takes approximately 15 seconds to assign a score to an individual bird.



HOW TO ASSIGN A SCORE

Use one hand to hold the live bird upside down by both legs. The bird's head can be facing upwards or downwards, whichever is more comfortable for you and the bird. Use the palm of your other hand to palpate the breast muscles, paying particular attention to the keel (breast) bone and the tip.

You may find it easier to hold the live bird upright, close to your body, with one hand holding the birds outside wing and using your other hand to palpate the breast muscles.

BODY CONDITION SCORES



Photos: Welfare Quality Assessment for Laying Hens: A Handbook

Score of 0 – Very Thin

A score of 0 reflects an emaciated and weak bird with low breast muscle to bone ratio. The keel bone will be prominent with limited breast muscle development. There could be several reasons for an emaciated bird including insufficient feeder and/or drinker space, poor feed or water quality, or disease. These birds will likely need to be humanely euthanized by a properly trained and competent individual.

Score of 1 – Underweight

A score of 1 reflects a bird with the keel bone still prominent; however there is greater breast muscle development, which feels more flat. These birds may be compromised and should be segregated from the rest of the birds. If you are noticing several birds in your flock with body condition scores of a 0 or a 1, contact your veterinarian.

Score of 2 – Ideal

A score of 2 reflects a healthy bird with the keel less prominent and moderately developed breast muscle. A score of 2 may be underweight for meat birds (broilers and turkeys).

Score of 3 – Overweight

A score of 3 reflects a bird that has a smooth, well-developed breast muscle over the keel. The keel is not easily felt. This can be a common problem in backyard and small flocks, as owners may have a tendency to overfeed their birds with treats or table scraps or if the birds are confined and not getting enough exercise. This can cause a decline in egg production and complications such as a prolapsed vent. Ensure you are feeding a well-balanced ration, limit treats and table scraps to no more than 5% of the bird's diet, and ensure that the birds get ample exercise.

As you assign a body condition score to your birds, keep in mind that what is considered ideal for a body condition score will vary between species and breeds. Laying breeds that are genetically selected for increased egg production (such as a Leghorn) will naturally be a leaner bird that is less muscular compared to broilers, turkeys, and many dual-purpose breeds. Some keel bone prominence will be normal.

References

Welfare Quality Assessment for Laying Hens: A Handbook

G. Gregory & J. K. Robins (1998) A body condition scoring system for layer hens, *New Zealand Journal of Agricultural Research*, 41:4, 555-559

CHAPTER 9: BREEDING, HATCHING, AND RAISING CHICKS

Small flock owners may want to raise their own chicks to replace hens that are going out of lay or if they are expanding their flock. You can purchase eggs or chicks, or hatch eggs from your own flock if they are fertilized.

Urban municipalities may have bylaws prohibiting the keeping of chickens in town that are under a certain age (for example, 16 weeks old), and as roosters are not allowed you will not have fertilized eggs.



BREEDING

If you would like to have fertilized eggs, you should aim to have a ratio of one rooster for every ten hens in your flock.

When a rooster is ready to mate a hen, he will stand on her back and grab the feathers located at the back of her neck with his beak, while the hen crouches down. You may notice the hen has some damage to her feathers or bald spots on her back after mating. The rooster's reproductive organs are located inside of his body; the transfer of sperm happens when the rooster's cloaca (vent area) touches the hen's cloaca. Sperm will travel up the hen's oviduct to fertilize a developing yolk. Hens can lay fertilized eggs for approximately 10 days after the mating occurs.



INCUBATION

Chicken eggs will hatch at 21 days of age, while turkey eggs will hatch between 25 to 31 days of age. Duck eggs take between 28 to 35 days, depending on the breed.

Incubators vary widely with regard to size, style, features, and price. Some incubators have features such as observation windows, built-in candlers, automatic egg turners, and alarms that sound if the temperature or humidity falls outside of the optimal range.

AT A MINIMUM, THE INCUBATOR MUST HAVE:

- A thermometer to measure temperature. For chicken eggs to develop, the temperature must be a minimum of 99.5°F (37.5°C) while the eggs are in the incubator. Temperature is very important to have a successful hatch and should be checked daily.
- A hygrometer to measure humidity. For chicken eggs to develop, the humidity should be between 45-55%. On day 18 the humidity should be increased to 55-70% which aids the chicks during hatching. Humidity is just as important as temperature to have a successful hatch and should be checked daily. You will need to add warm water occasionally to the incubator to maintain the humidity.

It is also critical that the incubator is ventilated. Depending on your incubator, you may need to manually adjust vents to control ventilation effectively. Consult the user manual that came with your incubator for specific instructions.

If your incubator does not have an automatic egg turner, you will need to turn the eggs ideally 3 times a day to keep the contents of the egg from sticking to the shell walls. Incubators with automatic turners turn the egg very gradually, similar to how a hen would. Mark eggs with an "X" on one end and an "O" on the other to keep track of when you have turned the eggs. Turn the eggs as quickly as possible, so heat and humidity is not escaping the incubator. You can stop turning the eggs at day 18, at which point the eggs can lay on their side on the floor of the incubator until they hatch. Make sure to always wash your hands before and after handling eggs!

KEEP THE FOLLOWING TIPS IN MIND:

To make hatching simple, you can collect eggs for up to 10 days and then place them in the incubator all at once so the chicks all hatch together. They should be kept at a cooler temperature, between 50 to 60°F (10°C to 15.5°C), with the humidity around 75%. While eggs are being stored they need to be turned a minimum of 3 times a day.

- The incubator should be located in a warm area with no drafts, out of direct sunlight.
- Run the incubator for at least 24 hours prior to putting eggs in to ensure it is running properly.
- Always select eggs that are clean with no cracks to avoid cross-contamination.
- Place eggs in the incubator with the pointy end down.
- Eggs should be candled between 7-10 days to determine if an embryo is developing. This can be done by holding the egg up to a bright light source in a dark room to view the contents. You can purchase a candler or use a bright flashlight. Candle the eggs as quickly as possible. Eggs that are not developing should be removed from the incubator immediately, as bacteria growing inside the eggs may cause them to explode and contaminate the other eggs.
- A viable egg will have a dark spot in the egg (the embryo) with visible veins extending out from it. A red ring in the egg indicates the embryo has died and needs to be removed.

If you aren't sure if you want to invest in an incubator, there are businesses who rent out incubators for a month's time. They will often supply you with brooder equipment too. Please see the Resources chapter for more information.



HATCHING

Hatching is a very exciting time! Your hatch rate will vary based on the source of the eggs, the incubator conditions, and how the eggs are handled. For most small flock owners, a hatch rate of 50 to 70% is average. Remember that 50% of the chicks you hatch will be roosters. As most small flock owners are more interested in raising hens, make sure you have a plan of how to deal with the roosters you hatch. Options include butchering or re-homing.

HATCHING OCCURS IN TWO PARTS:

- **Internal pipping:** The chick will break the air cell inside the egg on day 20. Around this time you may hear cheeping.
- **External pipping:** Using their egg tooth, the chick will break through the eggshell on day 21.

Hatching can be a slow process, so be patient! It can take up to several hours. Once the chick has hatched, it will be wet and may rest for some time before starting to move around. Chicks should stay in the incubator until they are fully dry before being moved to the brooder; this can take up to 24 hours.

Once the chicks have been moved to the brooder, the incubator must be cleaned thoroughly before it is used again.

Ensure all fecal matter and egg shells are removed and dump out any water in the reservoir. All surfaces should be washed, disinfected, and left to dry thoroughly.

Another option is to allow a hen to hatch her own eggs, or those of another hen's. Some breeds (such as Silkies and Cochins) are quite broody, meaning they have a strong urge to hatch eggs and raise chicks. They will accept eggs to hatch that are not their own. The hen will keep the eggs at the optimum conditions, turning them slightly throughout the day. You will need to provide the hen with a quiet, safe area away from the other flock members until the chicks are old enough to be integrated into the flock.



RAISING CHICKS

Your new chicks will need a brooder located in a safe and quiet area where they can stay warm. You can purchase a brooder or build one yourself. Ensure your brooder has tall sides (at least 18" high), is fully enclosed, and has enough room so that chicks can move away from the heat source. Select a brooder that will be easy to clean; a large Rubbermaid, playpen, rabbit hutch, or aquarium can work well.

Have your brooder set up and pre-heated at least 24 hours before the chicks hatch. You will need:

- **Water:** Clean, cool water must be available at all times. Ensure the water is not more than a 1-2 inches deep or chicks may drown. Placing marbles in the water will help prevent the chicks from drowning. There are several different styles of waterers available; nipple waterers keep the water cleaner. When you first place chicks in the brooder, you may want to dip each of their beaks briefly in the water to get them started drinking.
- **Feed:**
 - Have starter feed available for the chicks. If you have a hen with chicks, she can also eat the starter feed.
 - If the chicks are not vaccinated for coccidiosis, discuss feeding a medicated feed with your veterinarian. If the chicks are vaccinated for coccidiosis, please see the note below.
 - Broiler chicks will need a starter feed that is higher in protein, or else they may have leg problems due to fast growth.

- Ensure each chick will have adequate space at the feeder.
- Feed can be provided in the first few days in egg cartons or on paper plates on the floor so it is easy to find.
- Make sure to clean up any feed or water spills immediately.
- Consider raising the feeders and waterers as the chicks grow, so they stay cleaner.

- **Bedding:** Must be kept clean and any soiled material removed daily. Shavings at a depth of 1-2" are ideal as newspaper or straw can become slippery.

- **Space:** Chicks grow very quickly. Prepare for the chicks to require at least 36 square inches when they are 4 weeks old. You may want to add a roost in the brooder for enrichment.

- **Heat:** Heat needs to be provided to the chicks at 90-95°F (32-35°C) for the first week after hatch and decreased by 5°F (2.5°C) every week thereafter until it reaches 70°F (21°C). You can decrease the temperature to the chicks by raising the heat source or reducing wattage of the bulb. Have a thermometer in the brooder, at chick level, to monitor the temperature daily. Extreme caution needs to be exercised when adding heat lamps to brooders as they can be a fire risk if not used properly. The number and wattage of heat lamps you will require in your brooder will depend on the temperature of the room the brooder is in, how many chicks you have, and the size of the brooder.



TAKE THE FOLLOWING PRECAUTIONS WITH HEAT LAMPS:

- Keep heat lamps at least 18" away from anything combustible including bedding material.
- Keep water dishes away from heat bulbs as it may cause them to explode.
- Do not suspend lights by the cord alone, use a chain (preferably two) to ensure the lamp is secure.
- Consider using a heated pad, designed specifically for animals, which is a much safer alternative. It can be laid flat on the floor of the brooder and the chicks can move on or off it as needed.



The chicks' behaviour will tell you if the temperature too warm or too cold. If the birds are acting lethargic and are huddled together, they are too cold or stressed. If the birds are panting and spread away from the heat source, they are too warm. Happy chicks are active and are dispersed evenly throughout the brooder.

The chicks will need the brooder for at least a month, depending on their permanent housing set up and time of year. Chicks will develop all of their feathers around 6-8 weeks old. If they will have access to the outdoors in their permanent coop, and it is in the winter months, they may need to spend additional time in the brooder until it warms up or they will need a heat lamp added for additional warmth. You will need to adjust the size of the waterers and feeders as the birds grow. Young birds must be well protected from predators. Make sure you clean your brooder and equipment between chick batches using a disinfectant and letting it dry thoroughly.

A NOTE ABOUT VACCINATION

There are vaccines available that are administered to day-old poultry to help develop immunity to Coccidiosis. The following guidelines should be followed post-vaccination to ensure the vaccine is effective:

- In the first 24 hours after being vaccinated:
 - Ensure the chicks have access to unlimited feed and water.
- In the first 16 days after being vaccinated:
 - Do not feed medicated feed containing anticoccidials.
 - Do not use essential oils, including Oregano oil.
 - Do not use antibiotic products with anticoccidial properties (for example, Tetracycline or Sulpha).
 - Do not change the litter; it is important the litter moisture can build up for the parasite to cycle properly.
 - Do keep the chicks as calm as possible, avoiding any additional stresses that could compromise the chick's immunity.

KEEP YOUR CHICKS AND YOU HEALTHY!

Make sure to always wash your hands before and after handling chicks and equipment! Chicks carry Salmonella, which can be transmitted to humans. It can be serious in young children, elderly individuals, or those whose immunity is compromised.

THE FOLLOWING TIPS WILL HELP KEEP YOUR CHICKS HEALTHY:

- Do not mix chicks from several sources together as this increases the likelihood of disease.
- Have dedicated feeders, waterers, and other equipment.
- Keep the brooder clean.
- Observe the chicks daily for any signs of disease.
- Always monitor young children with baby chicks as they may handle them too roughly.



INTRODUCING NEW BIRDS TO YOUR FLOCK

Once the chicks have reached 18-25 weeks of age, they are ready to be introduced into their permanent coop. It is much easier to introduce new birds into an existing flock when they are all similar in size.

Birds can be territorial and have a very distinct pecking order. If not done properly, adding birds into a flock can be stressful on the birds and on you. To minimize stress, birds should be introduced gradually. If you rush the process, it can lead to fighting between the birds and a bird could sustain injuries or die.

- Before mixing birds, ensure the new birds are not showing any signs of disease.
- Place the new birds in a pen next to or in the permanent coop so the birds can see one another but cannot make physical contact. This process may last up to two weeks.

Once the birds seem to be settled, you can introduce the birds into your existing flock. Make sure to monitor the birds closely. Some pecking is normal as the birds determine a new pecking order, but if a bird becomes injured or the pecking is very persistent you will need to separate the birds and try again. It can take several attempts.

Ensure there is adequate space in the coop for the birds, and that the birds have areas in which they can hide if needed.

If you have one chicken that is being aggressive, you can isolate the bird for a few days. Usually the chicken will be more submissive once re-joining the flock.

CHAPTER 10: HEALTH PROBLEMS AND DISEASES

As a poultry owner, it is very important that you educate yourself on how to properly care for the birds in your care to ensure you maintain a healthy flock.

You may find it helpful to review Chapter 11: Biosecurity, as good biosecurity practices will help prevent disease from entering your flock and keep any disease in your flock contained.

PREVENTING DISEASE IN YOUR FLOCK

Before one of your birds becomes sick, make sure you have contact information handy for a local veterinarian who treats poultry. Preventing your flock from getting a disease is much cheaper and easier to manage than dealing with a disease outbreak. By following the basic procedures listed below, you can help reduce the risk of your birds contracting disease:

- Maintain a closed flock. Quarantine new birds for a minimum of 30 days before introducing to your existing flock. Ensure birds you purchase are from reputable sources.
- Ask the hatchery or bird provider about vaccination status of the birds. Prior to sourcing birds discuss vaccination protocols for the flock with a veterinarian.
- Minimize visitors, especially those who keep poultry themselves.
- Have dedicated footwear and clothing for your coop. Always wash your hands before and after handling birds and the eggs. Ensure any visitors to your coop follow the same procedures.
- Prevent contamination of your flock's feed and water by wild birds and animals.
- Use proper cleanout and disinfection procedures to thoroughly clean the coop and all equipment.
- Dispose of any mortalities, litter, and manure promptly in accordance with local legislation.

REPORTABLE DISEASES

Some poultry diseases are reportable as they can have a significant impact on human and/or animal health, food safety, and to our economy. If a reportable disease is suspected or confirmed in a flock of birds, government authorities will launch a disease investigation. This may include notifying other flock owners in the area of a disease outbreak, placing your flock under quarantine, collecting samples and testing, cleaning and disinfection of the coop, and humane euthanasia of the flock. Avian Influenza, Newcastle Disease, and Infectious Laryngotracheitis are all examples of reportable diseases.

For a list of reportable diseases see the following website: <http://www1.agric.gov.ab.ca/%24department/deptdocs.nsf/all/cpv12455>

If you suspect a reportable disease in your flock or have a confirmed diagnosis, it needs to be reported to the Office of the Chief Provincial Veterinarian in Alberta by calling 1-780-427-3448 or 1-800-524-0051 (after hours).

SIGNS OF DISEASE

Because they are a prey species, chickens hide illness very well. If you notice any of the following signs of disease in your flock, make sure you contact your veterinarian, the Office of the Chief Provincial Veterinarian, or the CFIA immediately:

- Sudden death or high mortality in your flock (greater than 0.5% mortality in your flock for 2 days in a row).
- Decreased egg production (a drop of 5% or greater for more than 2 days in a row).
- Eye and nasal discharge.
- Diarrhea or bloody manure.
- Pale combs and wattles.
- Sneezing, coughing, difficulty breathing and/or gasping for air.
- Swelling in the eyes, ears, or head.
- Inactivity or lack of appetite.
- Tremors, lack of balance, or paralysis.

If you do have a bird that is exhibiting signs of disease, take the following measures:

- Separate the bird from the rest of the flock immediately to avoid spreading disease. A minimum of 30 feet of distance is ideal if possible.
- Monitor the rest of your flock for any signs of illness.
- Ensure the bird stays hydrated by having water and food available at all times. You may want to add a vitamin and electrolyte supplement (available at your local farm supply store or pharmacy) to the water to help keep the bird hydrated.
- Your veterinarian will need to do a physical examination of the bird and testing to confirm a diagnosis. Always consult with your veterinarian before starting any type of medication. Your veterinarian will ensure you are giving the correct medication based on a diagnosis and will advise you on the correct dosage, frequency, and how to administer.
- Keep records of the date the bird became ill, age, symptoms, and any treatment started. Make sure to record mortality, changes in egg production, and feed and water intake.



Once treatment has started, birds will typically respond within 48 hours. If the bird is not improving and is suffering, euthanasia may be the most humane decision. For more information on euthanasia considerations, please see Chapter 12: End of Life Plans.

Regularly handling your birds and being familiar with their overall body condition and health status will be helpful when assessing if your bird is ill. For information on handling of birds and body condition scoring, please see Chapter 12.

POULTRY FIRST AID KIT

Be prepared by having a First Aid Kit ready in case you find yourself with a sick or injured bird.

LIST OF ESSENTIAL ITEMS:

- The contact information for your nearest veterinarian that treats poultry
- Separate crate, pen, or rabbit hutch as a recovery area
- Heat source
- Bandages
- Pipe cleaner
- Tweezers
- Scissors
- Antibacterial ointment
- Wound cleansing spray
- Disposable gloves
- Gauze pads
- Vet wrap
- Cloth bandaging tape
- Vitamin and electrolyte supplement
- A syringe
- Dog or cat nail clippers for trimming toe nails and styptic powder (to control bleeding)
- Lubricant (for prolapsed vents)
- Towels

VACCINATIONS

You will notice in the list of poultry diseases below that some have vaccines available that are administered to chicks at the hatchery. This is the easiest route, however if you are hatching your own chicks you may want to vaccinate your own birds. Vaccines are typically only available in large quantities and may not be economical if you have a small number of birds. Always consult with your veterinarian first before administering vaccines and ensure you follow all label directions on the vaccine, including how to store them properly. Pay special attention to any withdrawal periods for both broilers and layers.



COMMON POULTRY DISEASES

This is a list of some of the more common poultry diseases:

INFECTIOUS LARYNGOTRACHEITIS (ILT)

ILT is a disease that affects the respiratory system of chickens. Signs vary but include coughing, gasping, nasal and eye discharge, difficulty breathing, and a decrease in egg production. The disease most often affects birds over the age of three weeks old and is spread through birds, humans, equipment, dust etc. The best way to prevent ILT in your flock is to practice good biosecurity protocols, including purchasing birds from sources that are ILT free, and isolating new birds before introducing into your existing flock.

Mycoplasma gallisepticum

Mycoplasma is a bacterium that affects the respiratory system of chickens and turkeys. By weakening the bird's immune system, it is more susceptible to disease. Signs include nasal and eye discharge, coughing, sneezing, slow

growth, and a decrease in egg production. The disease most often affects older birds and is spread from the hen to the egg or directly through birds, humans, equipment, dust, etc. The best way to prevent *Mycoplasma* in your flock is to practice good biosecurity protocols. It can be treated with antibiotics upon consultation with your veterinarian.

MAREK'S DISEASE

Marek's is a virus that affects the nervous system of chickens and turkeys. Signs include tremors, paralysis, and poor motor control on one side of the bird. The disease most often affects young birds and is spread through birds, equipment, dust, etc. The best way to prevent Marek's in your flock is to request the chicks be vaccinated at the hatchery.

COCCIDIOSIS

Coccidiosis is a parasite that affects the intestine of the chicken. Signs include blood in the feces, a decrease in feed consumption, and withdrawn behaviour. The disease typically affects young birds and is spread through birds and in the feces. The best way to prevent Coccidiosis is to request the chicks be vaccinated at the hatchery, provide sanitary living conditions, and to not overcrowd the birds. Medicated starter feed is available for chicks; however, if chicks have been vaccinated at the hatchery for coccidiosis, they should not be fed medicated starter feed within 16 days of vaccination, as it will render the vaccine ineffective. Medication is available to treat a flock with Coccidiosis; always consult with your veterinarian before starting any type of medication.

INTERNAL AND EXTERNAL PARASITES

Parasites can be spread by wild birds, contaminated equipment, pests, and on footwear or clothing.

Internal parasites include roundworms and tapeworms, which you may notice in the bird's feces. Do not deworm your birds until you have a confirmed diagnosis with your veterinarian, as some worms are not visible to the naked eye.

External parasites include mites and louse. These parasites may weaken the bird and make it more susceptible to other diseases. Check birds regularly for any signs by looking at the skin and around the vent. Birds with mites or lice will need to be treated, as well as the environment they are living in. Use all insecticides according to the label directions.

Be cautious with any type of treatment to follow label directions closely in regards to egg or meat withdrawal times.

POULTRY DISEASES THAT CAN SPREAD TO PEOPLE (ZONOTIC)

Some diseases can spread from poultry to people. By following proper food safety protocols (see Chapter 6: Egg Management) and good biosecurity practices (see Chapter 11: Biosecurity), you can minimize the risk of contracting a disease from your birds.

AVIAN INFLUENZA

Avian influenza is a virus that affects the respiratory system of many bird species, including chickens and turkeys. Symptoms include watery eyes, sneezing, coughing, and other respiratory signs. The disease is highly contagious and most birds in the flock will die within 2-3 days. Depending on the strain of influenza virus, avian influenza may be transferred to people either by direct contact with sick poultry or by indirect contact with contaminated environments. The best way to prevent avian influenza in your flock is to prevent direct and indirect contact with wild birds, especially migratory waterfowl.



CAMPYLOBACTER AND SALMONELLA

Campylobacter and Salmonella are bacteria that are commonly found in birds but can spread to people. Campylobacter is spread through having close contact with infected birds and poor food safety and hygiene practices. Salmonella is spread from the hen to the egg and in the feces. Symptoms include diarrhea, vomiting, fever, and nausea. Individuals with Salmonellosis may also experience headaches, cramps, and the chills. The best way to prevent contracting Campylobacter and Salmonella is to wash your hands before and after handling birds, having excellent biosecurity protocols in place, following food safety procedures, and cooking products to a safe temperature. Other bacteria that can spread to people through poultry are Listeria, Staphylococcus, and Clostridium perfringens.

COMMON POULTRY ALIMENTS

This is a list of some of the more common poultry ailments that you may be able to treat at home:



BUMBLEFOOT

Bumblefoot occurs when the bird has stepped on something sharp and injured its foot. It is difficult to treat and typically requires the use of antibiotics. The foot can become infected if left untreated and can cause death. You will notice a large swelling on the foot or toes. Separate the bird from the flock and wash the wound thoroughly and wrap it. It may help to soak the foot for 10-15 minutes in warm water, especially if it is a hard scab. Continue to rinse the wound daily, apply a wound cleansing spray or ointment, and then rewrap it. Once the bird starts to walk normally on the foot, it can be returned to the coop. Make sure to check the coop closely for the source of injury and make any necessary repairs.

Photo: Roberto Soares/Ceva
Animal Health



SPRADDLE LEG

Photo: Healthy chick with good legs

Spraddle Leg occurs when a baby chick's legs spread in opposite directions due to slipped tendons. This is more common on slippery bedding, such as newspaper. If left untreated, the chick will eventually die as it is not able to walk properly and access feed and water. Make a small splint using bandages or pipe cleaner to wrap around the chick's legs to hold in the correct position. Change the bedding to something non-slippery such as shavings. Some breeds of chickens are more prone to spraddle leg than others.

CURLED TOES

Curled Toes occur when a baby chick cannot walk normally because their toes are curled. This can be due to problems with the temperature or humidity in the incubator. If left untreated, the chick will eventually die, as it is not able to walk properly and access feed and water. Use paper and masking tape, or plastic bandages, to tape the chick's toes in the correct position. The dressings will need to be changed daily.



FROSTBITE

Frostbite occurs when a bird is exposed to prolonged cold temperatures. Areas of the bird's comb, wattles, and toes can eventually turn black, shrivel, and fall off. Birds with large combs and wattles are more susceptible to frostbite and consideration should be taken when selecting breeds that are suitable for a Northern climate. Pay particular attention to the ventilation in the coop as this can cause humidity levels to increase and moist air to stay trapped. Moist air in a coop can cause frostbite, even in mild temperatures. You can build your roosts out of 2x4's with the wide side facing up which forces the birds to cover their feet with their feathers when they roost in the evening.

CUTS, SCRATCHES, AND OTHER MINOR SKIN INJURIES

Birds with minor cuts, scratches, and skin injuries can be treated by washing the wound with warm water and soap. Apply styptic powder if necessary to help with any bleeding. Monitor the wound for several days, ensuring it does not become infected and that other birds are not pecking at it. Wounds should be cleaned twice daily until healed.

CHAPTER 11: BIOSECURITY

WHAT IS BIOSECURITY?

Biosecurity can be defined in simplistic terms as “keeping what is inside in and what is outside out”. Good biosecurity practices will help prevent disease from entering your flock and keep any disease in your flock contained.

Poor biosecurity practices can have an impact on:

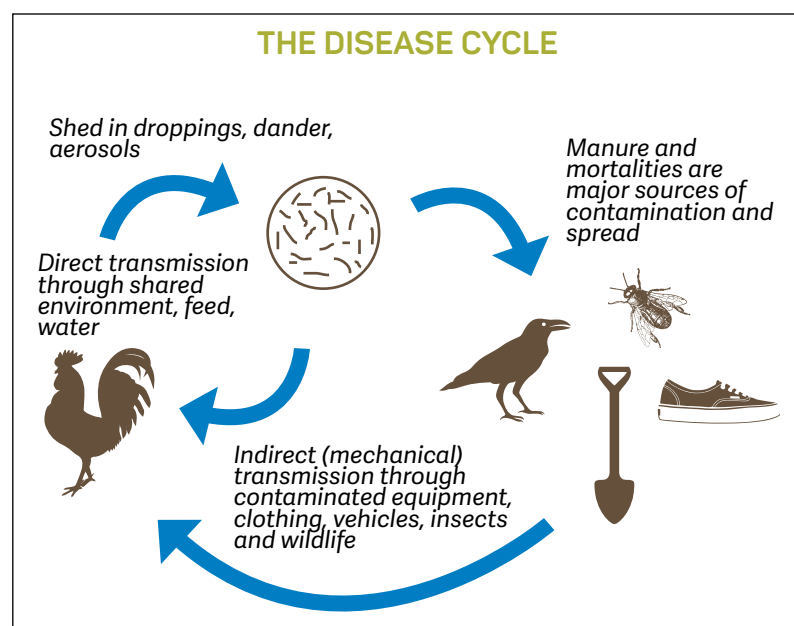
- The welfare of your birds.
- The health of those who care for the birds.
- The birds’ productivity (for example, egg production may decrease).
- Your farm income if you are selling eggs, meat, or by-products.
- Your farm expenses with increased veterinary costs.
- Other flock owners and the poultry industry as a whole if the disease spreads.

Keep what is inside in and what is outside out!

It is much easier and cheaper to prevent disease from entering your flock in the first place than to try to control a disease outbreak. If you do end up with a disease outbreak in your flock, you will need to act quickly to prevent it from spreading.

Humans are often the source of spreading disease between birds or flocks through their clothing and footwear. Disease can also be spread by:

- Introducing new birds to the flock without a proper quarantine period first. The risk can be greater if the birds come from a questionable source (for example, an auction where many birds have been potentially mixed together and are at risk of carrying disease).
- Other animals such as wild birds, pests, and wildlife.
- Contaminated soil, feed, water, or litter.
- The carcasses of dead birds.
- Contaminated equipment.
- Airborne particles and dust.



GOOD BIOSECURITY PRACTICES

It is ideal to practice “all-in, all-out” management where birds in a flock are from the same source and are the same age. However, this is likely not practical in urban or small flocks.

THERE ARE SOME SIMPLE BIOSECURITY PRACTICES YOU SHOULD FOLLOW THAT WILL MINIMIZE THE DISEASE RISK:

- Always wash your hands before and after handling your birds. If water is not easily accessible, alcohol based hand sanitizer will also work.
- Have dedicated clothing, footwear, and equipment for your coop. This clothing and footwear should never be worn off your property.
- Ensure that any new birds you intend to introduce to your flock are quarantined for at least 30 days.
 - Have dedicated clothing, footwear, and equipment for birds that are in quarantine. Do not share between these birds and your existing flock.
 - Place the birds in a quarantine area that is ideally located at least 30 feet from your flock.
 - Ensure birds come from reputable sources where they are less likely to carry disease.
 - Remember a bird can appear healthy while still being a disease carrier; therefore, it is important to monitor the birds carefully during the quarantine period for signs of disease including coughing, eye or nasal discharge, lack of appetite, diarrhea, etc.
- Consider getting your birds vaccinated as chicks from a hatchery, or sourcing adult birds that have been vaccinated.
- If you have multiple flocks on your premises, minimize contamination by doing chores from the flocks with the higher to lower health status and from youngest to oldest. If you have birds in quarantine make sure you tend to them last.
- Control who is visiting your birds, especially if they keep poultry.
 - Provide visitors with dedicated footwear or disposable boot covers. Foot baths can also be used although they need to be managed properly, as they must be changed regularly and can be difficult to use in winter as they can freeze depending on how your coop is set up.
 - If using a foot bath, ensure visitors scrub their shoes to remove organic matter prior to placing in the footbath.
 - Disposable boot covers should be disposed of on the property.
- Have a “No Entry” or “Do Not Enter” sign on your coop to discourage strangers from entering that do not have your permission. Add a phone number you can be reached at and consider putting a lock on the door.
- Keep wild birds and other animals that may harbour illnesses and parasites away.
 - Clean up any spilled feed immediately and store feed in secure containers.
 - Pick up any leftover feed the birds haven’t touched at the end of the day (for example, table scraps) and any broken eggs.



- Minimize entry points to the coop. Ensure the door to the coop is closed at night to keep your birds contained and wild animals out.
- Use galvanized wire mesh with openings no larger than half inch by half inch on the walls and roof of your outdoor run. The mesh should be extended a minimum of 18" below ground or the entire floor of the outdoor run will need to be covered with it to stop predators from burrowing under.
- Do not place wild bird feeders in near proximity to your coop.
- Keep the perimeter of the coop clear of any garbage and grass/weeds that could be used as hiding areas for rodents.
- Check for evidence of predators and rodents regularly and act accordingly, ensuring any traps are not accessible to domestic pets and your birds.
- Purchase feed and bedding from a reputable supplier.
- Do not share or sell eggs in cardboard egg cartons or flats as they cannot be cleaned properly.
- Consult with your veterinarian if you are observing sick or dying birds. Keep records of sick birds (date, signs of disease, and action taken) and any dead birds.
- Dispose of any dead birds immediately in accordance with your local legislation.
 - If you are having a post-mortem done on your bird, follow the directions from the laboratory or veterinarian for proper storage until the bird can be dropped off. Ensure the carcass is kept in a secure container where it is not accessible to wild animals.
 - For farm and acreage owners only, acceptable methods of disposal include composting, incineration, burial, rendering or natural disposal.
 - For urban flock owners, your options will be more limited as carcasses may or may not be placed with your household garbage, depending on your local bylaws. Your options include landfill disposal (for a minimum fee) or disposal through a veterinary clinic, similar to a dog or cat.

CLEANING AND DISINFECTION OF THE COOP AND EQUIPMENT

One of the most important steps to maintaining a healthy environment for the birds is to keep the coop and equipment clean. Chicken coops can become dirty quickly through accumulation of feces, feathers, dust, and dirt. For a list of daily, weekly, monthly, and seasonal chores please see Chapter 3: General Management, Time and Financial Commitments.

When it is time to do a thorough cleaning of the coop and all equipment, make sure you follow the steps below. This will ensure a clean environment and can help destroy viruses and bacteria which may be harmful to you and your flock.

- Wear personal protective gear such as disposable gloves, a face mask, boots, and coveralls.
- Remove all birds in the coop to a different location.
- Remove all the equipment including feeders and waterers. Scrub to remove any organic material and allow to soak in a detergent. Rinse with water and air dry.
- Remove all bedding and organic material from inside of the coop (manure, feathers, feed, dust, etc.) and dispose of properly, in accordance with your local legislation.
- Use a hose, preferably one that is pressurized, to spray the inside of the coop with water. Make sure you spray the ceiling, walls, floors, and nest boxes. Next, spray with a detergent and allow to soak. Rinse with water and air dry.

- Apply a multi-purpose disinfectant available at your local farm supply store.
- If an outdoor run is provided, it may need to be raked.
- Once the coop is dry, replace with new bedding and return the birds to the coop.

DISINFECTANTS

Many multi-purpose disinfectants are available for purchase at your local farm supply store that will work well for disinfecting your coop and equipment. One example is Virkon, which is effective against poultry diseases such as Salmonella, Avian Influenza, and Newcastle Disease. Exercise caution around disinfectants, as they are poisonous if swallowed or inhaled. Ensure if you are working with disinfectants that there is proper ventilation and that you are wearing personal protective gear. Follow all directions on the label for use, expiry dates, how to apply, etc.

It is not advisable to borrow equipment from another flock owner's coop; however, if you must, ensure that it is cleaned and disinfected first using a multi-purpose disinfectant.

It is highly recommended to allow for a minimum of two weeks of downtime between poultry flocks. Once the coop has been cleaned and disinfected, wait two weeks before you place new birds.

CLEANING AND DISINFECTION OF VEHICLES

If your birds are being transported in vehicles, the vehicles and any equipment used to transport the birds, including crates and containers, must be cleaned and disinfected. This includes the interior and exterior of the vehicle. Organic matter needs to be removed first to ensure the disinfectant is effective. It can be difficult to clean and disinfect vehicles and equipment in cold weather; a car wash may be a viable option.

If your vehicle will be in proximity to another coop or live birds (for example at a show or auction), ensure that you clean and disinfect the tires on your vehicle, too.

VISITING A FARM WITH BIRDS

If you are visiting a farm with birds, ensure that you:

- Avoid parking near the coop.
- Do not enter the coop until you have met with the flock owner to get instructions first.
- Be cognizant of the above biosecurity practices. Flock owners may have varying standards of biosecurity. Always follow the highest level of biosecurity.
- Ensure that you wash your clothing upon returning home and disinfect your footwear.

IN A DISEASE SITUATION

If your flock or another flock near you becomes sick, additional biosecurity precautions should be taken:

- Segregate any sick birds immediately from the flock.
- If you have multiple flocks on your premises, always handle the sick birds last.
- Avoid visiting other poultry, including at auctions or shows, if your flock is sick or there is a disease outbreak in the area.

CHAPTER 12: END OF LIFE PLANS



LIFESPAN OF A BIRD

Before deciding to keep poultry, it is important to consider the lifespan of a bird and end of life plans. It is much easier to have a plan in place before you find yourself in the middle of a sensitive situation. Each flock owner will have a different idea of what is appropriate for end of life plans because this is based on their individual values, past experiences, and what is practical for their situation.

End of life plans can be especially difficult for layers because these birds are not typically raised for meat and can potentially

live several years. Layers will often be at their peak level of egg production around a year old before gradually declining in production. An urban flock owner may find themselves with a small flock of birds that are the same age, who are not producing eggs. If you decide to keep your chickens, you could have years of caring for birds that are not laying. There is no right or wrong answer; your decision will be based on what you are comfortable with.

OPTIONS FOR “RETIRED” BIRDS

- Continue to care for the birds for the remainder of their life.
- Re-home your birds.
- Consult with your veterinarian about humane euthanasia.
- Consult with other operations permitted to dispose of birds (abattoir).

EUTHANASIA

When raising your own birds, you will inevitably experience a bird that becomes ill or injured and you will need to make a decision about the bird's quality of life. Euthanasia may be the most humane option if recovery is not likely or treatment is not practical. If you live in an urban municipality, you are prohibited from killing birds on your property.

EUTHANASIA DEFINITION

Euthanasia is the act of inducing humane death in an animal with minimal pain and distress.

KNOWING WHEN TO CONSIDER EUTHANASIA

Flock owners need to be able to recognize normal bird behaviour and the signs of pain, injury, illness, and distress that may indicate euthanasia is the most humane option.

The following questions may help you make a decision about euthanasia.

- Does the bird appear to be experiencing pain or distress?
 - Signs of pain or distress in individual birds may include lethargy, hunched posture with head drawn in, ruffled or dirty feathers, physical abnormality or limited mobility, reluctance to eat or drink, severely injured, swollen head, discoloured comb, or poor body condition.
- Are feed and water readily available and can the bird access these?

- Can the cause of the pain or distress be addressed?
- Is recovery likely within 48-72 hours?
- Is the bird responsive to treatment and showing improvement?
- Is the bird likely to transmit disease to other birds?

Photos (Left to Right): Compromised chick (diseased), compromised chick (leg injury)



EUTHANASIA CONSIDERATIONS

Once you have made the decision to euthanize a bird it should be carried out in a timely manner. Often times, small flock owners may delay euthanasia as they dread the task. However, this can cause the bird to suffer needlessly.

Many small flock owners are not comfortable or trained to perform euthanasia themselves. It is highly recommended to have a veterinarian perform humane euthanasia or to train you on how to do this properly. Establish a relationship with a veterinarian in your area before you find yourself in a sensitive situation. Even if the veterinarian does not treat poultry, they will likely still be able to help you with humane euthanasia.

While it is ideal to have a veterinarian perform the euthanasia, there may be circumstances where a veterinarian is not available or a bird is suffering and needs to be euthanized immediately. Two methods considered acceptable for small flock owners are discussed below. As you read through the options, keep in mind the following:

THE BIRD'S WELFARE:

It is crucial that birds are restrained properly to ensure the euthanasia method is effective.

If possible, have a second person present, especially if you are handling larger birds.

Your safety.

- The method selected must not pose a safety risk to individuals performing the euthanasia.

Training.

- Euthanasia requires that the individual has been trained in order to ensure the bird is humanely killed in the most effective manner! Only individuals trained and competent in the procedure should perform euthanasia!
- Trained individuals will have knowledge of appropriate euthanasia methods, how to avoid operator injury, know how to confirm the bird is deceased, and the proper methods to dispose of the carcass.

- The individual must be comfortable with the procedure and confident in their level of skill.
- It is your responsibility to ensure that anyone who will be euthanizing your birds is trained and competent to do so.

Limitations

- Be honest about your physical and emotional limitations. You may not have the physical strength to handle live birds or be comfortable with performing euthanasia.

EUTHANASIA METHODS THAT ARE NOT ACCEPTABLE

Some methods of euthanasia discussed on online forums and threads for small flock owners are NOT humane.

The following methods are NOT acceptable.

- Leaving a bird that is suffering to eventually die on its own.
- Drowning the bird.
- Carbon monoxide poisoning.
- Suffocation.
- Blunt force trauma.
- Spinning the bird by the neck until it breaks, often called the “helicopter or windmill method”.
- Placing a broom handle across the back of a chicken’s skull and pulling up on the legs until the neck breaks, often called the “broomstick method”.
- Placing a live bird in the freezer.
- Poison.
- Shooting the bird.

EUTHANASIA METHODS THAT ARE ACCEPTABLE

With both euthanasia methods listed below, birds must be immediately rendered unconscious and stay insensible until death. Birds must be checked after the euthanasia method is performed to ensure the bird is deceased. If you are emotionally stressed at any point during the procedure, take care to ensure this does not negatively impact the bird’s welfare. Consultation with a veterinarian may be necessary.



Photos (Left to Right): Demonstrating decapitation (blade position and restraint), demonstrating cervical dislocation (holding head between thumb and forefinger)

If any of the following signs of consciousness are observed, the euthanasia method must be applied again or another method immediately administered (within 30 seconds).

- The bird blinks when the surface of the eye is touched.
- The bird is breathing (check for movement in the vent area).
- Vocalization.
- The bird attempting to right itself by holding its head up.

Death can be confirmed by the absence of breathing and a heartbeat. Death must be confirmed before birds are disposed of.

For a step by step guide, with photos, of the methods described below please see: <http://www.poultryindustrycouncil.ca/resources/euthanasia-resources-training-materials/>

For information on how to humanely euthanize a chicken by Dr. Mike Petrik, please see: <https://mikethechickenvet.wordpress.com/2017/02/16/euthanasia-for-backyard-birds>

METHODS OF EUTHANASIA ON-FARM (Adapted from National Farm Animal Care Council Code of Practice 2016)		
EUTHANASIA METHOD	CONDITIONS	ADDITIONAL COMMENTS
<i>Decapitation</i>	Instrument must be sharp and of appropriate size Procedure must be carried out in one quick motion and result in a complete severance of the head	This procedure will be messy (blood) and is not aesthetically pleasing Risk of disease transmission via blood
<i>Cervical Dislocation- Manual</i>	This method is generally restricted to smaller birds (e.g. <3 kg)	Performed correctly, cervical dislocation results in the luxation (dislocation) of the cervical vertebrae located at the base of the birds skull The site of the dislocation should be as close to the head as possible
<i>Cervical Dislocation- Mechanical</i>	Device must be purpose-designed and appropriate for the size of bird	Cervical dislocation can be difficult to perform correctly in large birds and therefore may not result in immediate loss of sensibility

References:

National Farm Animal Care Council Code of Practice 2016. Egg Farmers of Alberta Euthanasia Manual

CHAPTER 13: BUTCHERING



If you live on a rural property, you may be interested in raising birds for meat. Urban communities have regulations that prohibit slaughtering chickens on the property or selling meat, manure, or other poultry products. Chickens raised in urban communities are intended for eggs only.

In Chapter 1: Regulations, we covered the provincial regulations around selling meat or by-products. Small flock owners must follow provincial and federal regulations if you are planning on selling meat or by-products to the public, which includes having the birds processed at a provincial or federally inspected plant.

Small flock owners looking to butcher birds for their personal consumption may not be comfortable with the process or have all the necessary equipment, and may opt

for a mobile butcher or to hire it out to a custom butchering facility. Fees for butchering services will vary depending on your location, how the birds will be packaged, if the bird is whole or cut up, etc.

The provincial regulations in Alberta allow for a mobile butcher to slaughter your animals on your premises, but this meat can only be used by you or members of your immediate household; you cannot sell the meat to the public. The same regulation applies if you butcher an animal and process it yourself on your property.

BREEDS FOR MEAT PRODUCTION

In Chapter 2: Breeds, we covered birds that are bred specifically for meat production. They have large, deep breasts, a large frame, and grow fast. They are generally ready to butcher as early as 10 weeks old, when they weigh around 5 pounds. Most broilers are raised straight run, meaning there are both males and females. Males do tend to grow faster, but it is a minor difference.

Dual-purpose breeds are suitable for butchering, but may need more time as they grow slower. Breeds that have been bred for egg production such as Leghorns or fancy breeds such as Silkies are generally not suitable for eating as they have a small body frame with very little meat. Birds raised on pasture may need more time before they are ready to butcher as they will grow more slowly.

As the bird ages, it is more prone to health issues and the meat will become tougher. Depending on how you manage your birds, they may taste different than chicken you purchase from the grocery store.

If you are new to butchering birds, you may want to start small with 10-15 birds. Plan ahead for when you will be raising the birds, as broilers and turkeys are very susceptible to heat stress. It is easier to butcher in the cooler months when the temperatures are lower.

PREPARING FOR BUTCHERING

FOLLOW THE GUIDELINES BELOW AS YOU PREPARE TO BUTCHER THE BIRDS:

- Plan ahead for what to do with the waste (blood, manure, feathers, organs, etc.). Waste can be composted, incinerated, buried, rendered, naturally disposed, or disposed of at the landfill for a nominal fee.
- Withhold feed from the birds for 8-12 hours prior to butchering. This allows the bird's digestive tract to empty and prevents feed and fecal matter from contaminating the meat during butchering. If you are sending birds to a plant, they may be condemned if there is food left in the digestive tract.

- Follow all medicated feed withdrawal times.
- Provide water right up until the birds are killed.
- Have all your supplies set up prior to butchering.

Birds are easiest to catch in dim lighting conditions, either the evening before or in the early morning before daylight. Wear darker colors and talk quietly as you catch the birds to minimize any stress.

It is important that you assess each individual bird prior to butchering. Do not butcher birds that died from an unknown cause, are exhibiting signs of disease (Chapter 10), or are in poor body condition (Chapter 8).

Plan for up to an hour to process each bird, especially if you are butchering birds for the first time. Butchering is not an easy task; have others with you to help. It is strongly recommended to have someone present who has experience butchering poultry.

EQUIPMENT NEEDED

Having the equipment ready beforehand will make butchering day much more efficient, easier, and safer. Most supplies can be purchased at your local farm supply store or a sporting goods store.

- Large freezer



- Poultry killing cones
- An axe
- Heavy duty garbage bags
- Buckets

- Garbage can
- Running water supply
- Large container with a way to heat the water to scald the carcasses
- A thermometer
- Proper butchering knives
- Knife sharpener
- Disposable gloves
- Sink or container with a drain
- Paper towels
- Packaging supplies (plastic wrap, Ziploc bags, etc.)
- Sturdy work surface
- Coolers with ice water to chill the carcasses in
- Good lighting
- Extension cords
- Rubber boots
- A waterproof apron

If you plan on butchering birds on a regular basis, you may want to consider investing in a mechanical plucker as this will speed up the process considerably.

BUTCHERING DAY

STEP 1:

Once all the birds have been caught, humanely euthanize one bird at a time. Birds must be immediately rendered unconscious and stay unconscious until death. Euthanasia requires that the individual has been trained in order to ensure the bird is humanely killed in the most effective manner! Only individuals trained and competent in the procedure should perform euthanasia!

Review acceptable euthanasia methods in Chapter 12: End of Life Plans. Death must be confirmed by the absence of breathing, corneal reflex, and a heartbeat.

All birds should be euthanized and bled before daylight, when they are still sleepy and will be easier to handle. Provide as calm an environment as possible to minimize stress.

It is highly recommended to use a poultry killing cone. A killing cone restrains the bird and is useful for euthanizing a small number of birds by decapitation. Most birds stay calm in a cone as they feel secure. Make sure to place a bucket under the cone to catch the blood as the bird bleeds out. This may take several minutes.



Photos (Left to Right): Placing live chicken in a cone for restraint, knife placement

STEP 2:

The feathers must be plucked as soon as death is confirmed. Hold the bird by the feet and dip the carcass in scalding hot water for about ten seconds. This helps loosen the feathers for ease of plucking. If the feathers don't slide out easily, dip the bird in the hot water again. Water temperature should be 145 to 150°F (63 to 65°C). If the water is too hot, the carcass will start to cook. The water will need to be changed when it becomes dirty.

STEP 3:

After the bird has been plucked, you should inspect it to make sure it is safe for human consumption. Check for tumours, abscesses, and open sores or wounds. The bird should have white or yellow skin. Birds that are raised on pasture have a more yellow tinge to the skin.

STEP 4:

Remove the feet, head, and neck. You will also need to remove the crop, located at the base of the bird's neck/upper area of the breast. If feed was not withheld, work carefully around it as the feed could spill out and contaminate the carcass. Remove the oil gland, located at the back of the bird's tail at the bottom of the spine.

The organs also need to be removed. The organs are attached by the intestines to the vent. Depending on how you want to cut the bird up, you can either position your hand in the top of the body cavity and slowly and steadily pull them out, or cut the carcass along the backbone to remove the organs. Take care not to break the gall bladder when you are pulling out the organs.

The heart and lungs will still need to be removed. The heart is located in the center of the bird's chest and should pull out fairly easily. The lungs are bright pink; they can be difficult to grasp as they are tight to the bird's ribs and may need to be scraped out with your fingertips.

Take care any time you are cutting into the abdomen – you don't want to puncture the intestines!

STEP 5:

Rinse the carcass thoroughly inside and out. Chill the carcass as soon as possible after butchering so the body temperature is brought down to 40°F (4°C). After the carcass is completely chilled, how you choose to cut and package the bird (whole or cut up into pieces) will be up to personal preference. The carcass must be completely cooled before being placed into a freezer for storage.

HOW TO HANDLE MEAT SAFELY

IT IS IMPORTANT TO HANDLE MEAT SAFELY BY:

- Washing your hands thoroughly before and after coming in contact with meat.
- Storing meat in your refrigerator (at a temperature of 40°F (4°C) or colder) or in your freezer.
- Washing all utensils, surfaces, dishes, and cutting boards thoroughly before and after coming in contact with meat.
- Preventing cross contamination of raw fruits, vegetables, and ready to eat foods.
- Cooking foods containing meat properly; poultry should be cooked to a minimum temperature of 165°F (74°C).
- Using a meat thermometer to ensure the meat is cooked thoroughly.
- Refrigerating or freezing foods within 2 hours of cooking.

When preparing to eat your own poultry, make sure to double check for any remaining organs and pin feathers and remove if needed.

RESOURCES AND REFERENCES

GENERAL POULTRY RESOURCES

Alberta Farm Animal Care: <http://www.afac.ab.ca/>

ONLINE POULTRY RESOURCES

Alberta Agriculture and Forestry Ag-Info Centre: 403-310-FARM (3276)

Specialists are available to answer inquiries. Ask to speak to a poultry specialist

Raising Chickens in Alberta: A Guide for Small Flock Owners: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/aet15323/\\$file/raising-chickens-in-alberta-06-15r.pdf](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/aet15323/$file/raising-chickens-in-alberta-06-15r.pdf)

Animal Health Act and Regulations: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/acts12272](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/acts12272)

Small Flock Poultry: www.agriculture.alberta.ca/smallflock

Information on husbandry practices, disease prevention, and good management practices

The Poultry Site: <http://www.thepoultry-site.com/>

ARTICLES AND RESEARCH ON POULTRY RELATED TOPICS

River City Chickens Collective: <http://www.rivercitychickens.org/>

Resources and information on keeping backyard chickens

POULTRY FACEBOOK GROUPS:

Canada Liberated Urban Chicken Klub (CLUCK)

River City Chickens

High River and Area Chicken Keepers

Alberta Chickens Etc.

POULTRY BLOGS:

Mike Petrik Chicken Vet Blog: <https://mikethechickenvet.wordpress.com/>

The Chicken Chick: <http://www.the-chicken-chick.com/>

Fresh Eggs Daily: <http://fresheggdaily.com/>

BOOKS:

Fresh Eggs Daily: Raising Happy Healthy Chickens Naturally

<http://fresheggdaily.com/>

Raising Chickens for Dummies: http://stupidityshouldhurt.com/reference/Raising_Chickens_Dummies.pdf

Storey's Guide to Raising Chickens: <http://www.storey.com/books/storeys-guide-to-raising-chickens-3rd-edition/>

CHAPTER 1: LEGISLATION

Current urban communities that allow residents to keep chickens: www.afac.ab.ca

Premises Identification Number: www.agriculture.alberta.ca/premises

Application for obtaining a grading license from the CFIA: http://www.inspection.gc.ca/DAM/DAM-about-cfia-sujetacia/STAGING/text-texte/c3043_re_1381168478009_eng.pdf

List of federally registered egg stations: <http://www.inspection.gc.ca/food/eggs-and-egg-products/registered-stations/shell-egg-stations/eng/1391029540171/1391029591047>

Egg Farmers of Alberta: <http://eggs.ab.ca/>

Purchasing egg quota Alberta Chicken Producers: <http://www.chicken.ab.ca/>

Purchasing broiler quota Alberta Turkey

Producers: <http://www.albertaturkey.com/>

Purchasing turkey quota Marketing Eggs in Alberta: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex14045](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex14045)

Marketing Meat in Alberta: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex10326](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex10326)

CHAPTER 2: BREEDS

DNA Bird Sexing in Canada: <http://www.accu-metrics.com/avian.php>

CHAPTER 3: GENERAL MANAGEMENT, TIME AND FINANCIAL COMMITMENT

Urban Egg Farmer: top ten list of chores: <http://www.realdirtblog.ca/urban-egg-farmer-top-ten-list-of-chores/>

Ladies First Chicken Door Opener: <http://ladiesfirstchickendoor.com/>

Farm Supply Stores in Alberta (Carry feed, medications, brooding supplies, coop building supplies, etc.):

<http://www.peaveymart.com/>

<https://www.ufa.com/Pages/default.aspx>

<https://www.homehardware.ca/en/index.htm>

CHAPTER 4: BASIC NEEDS

Feed Manufacturers in Alberta: <https://www.agric.gov.ab.ca/app68/food-industry?section=category&cat1=Feeds+%26+Other+Feedstuffs>

AgriLux Poultry LED Lightbulbs: <https://www.agrilux.ca/home.html>

Sensor Push Temperature and Humidity Smart Sensor: <http://www.sensorpush.com/>

List of Food Toxic to Chickens: http://readynutrition.com/resources/10-foods-you-should-not-feed-your-chickens_09022014/

Wild Plants Toxic to Chickens: <http://www.cbif.gc.ca/>

Livestock Water Calculator: http://www.agric.gov.ab.ca/app19/calc/livestock/waterreq_dataentry1.jsp%20

Dine-A-Chook Chicken Feeders and Waterers: <https://www.dineachook.com.au/>

CHAPTER 5: DESIGNING AND CONSTRUCTING A COOP

Alberta One Call: Locations of any underground utilities: <http://albertaonecall.com/>

Rental Coops/Hens and Incubators:

The Urban Chicks: <http://www.theurbanchicks.com/>

The Egg Plant: <https://www.facebook.com/abeggplant/>

CHAPTER 6: EGG MANAGEMENT

Cooking Food Guidelines: www.eggs.ca

Food Safety in Alberta: [http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/All/fs14746](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/All/fs14746)

Chapter 9: Breeding, Hatching, and Raising Chicks

Alberta Hatcheries:

Poultry Research Centre: <https://heritagechickens.ca/>

Rochester Hatchery: <http://www.rochesterhatchery.com/>

Hawthorne Hatchery: <http://www.hawthornhillpoultry.com/>

Miller Hatcheries: <http://www.miller-hatcheries.com/>

CHAPTER 10: HEALTH PROBLEMS/DISEASE

Alberta Agriculture and Forestry Development Lab: 403-948-8575

Provides free diagnosis for poultry flocks

List of reportable poultry diseases: <http://www1.agric.gov.ab.ca/%24department/deptdocs.nsf/all/cpv12455>

Office of the Chief Provincial Veterinarian in Alberta: 1-780-427-3448 or 1-800-524-0051 (after hours)

Flu Advice for Backyard Swine and Poultry Owners:

[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/afs12665](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/afs12665)

ABVMA Veterinary Practice Directory: <http://abvma.in1touch.org/company/roster/companyRosterView.html>

Can search for veterinarians that treat Poultry – small flock

CHAPTER 11: BIOSECURITY

ABVMA: <http://www.abvma.ca/biosecurity/SmallFlock.asp>

Biosecurity measures for small flock owners

Free Resource Kit: Keeping Your Birds Healthy:

<http://www.omafr.gov.on.ca/english/livestock/poultry/facts/hbresourcekit.htm>

How to Prevent and Detect Disease in Backyard Flocks and Pet Birds:

<http://inspection.gc.ca/animals/terrestrial-animals/diseases/bird-health-basics/eng/1323643634523/1323644740109>

CHAPTER 12: EUTHANASIA

Poultry Mortality: http://www.agric.gov.ab.ca/flippingbook/agdex/450_29-1/html/index.html

Poultry Industry Council Euthanasia Resource Materials:

<http://www.poultryindustrycouncil.ca/resources/euthanasia-resources-training-materials/>

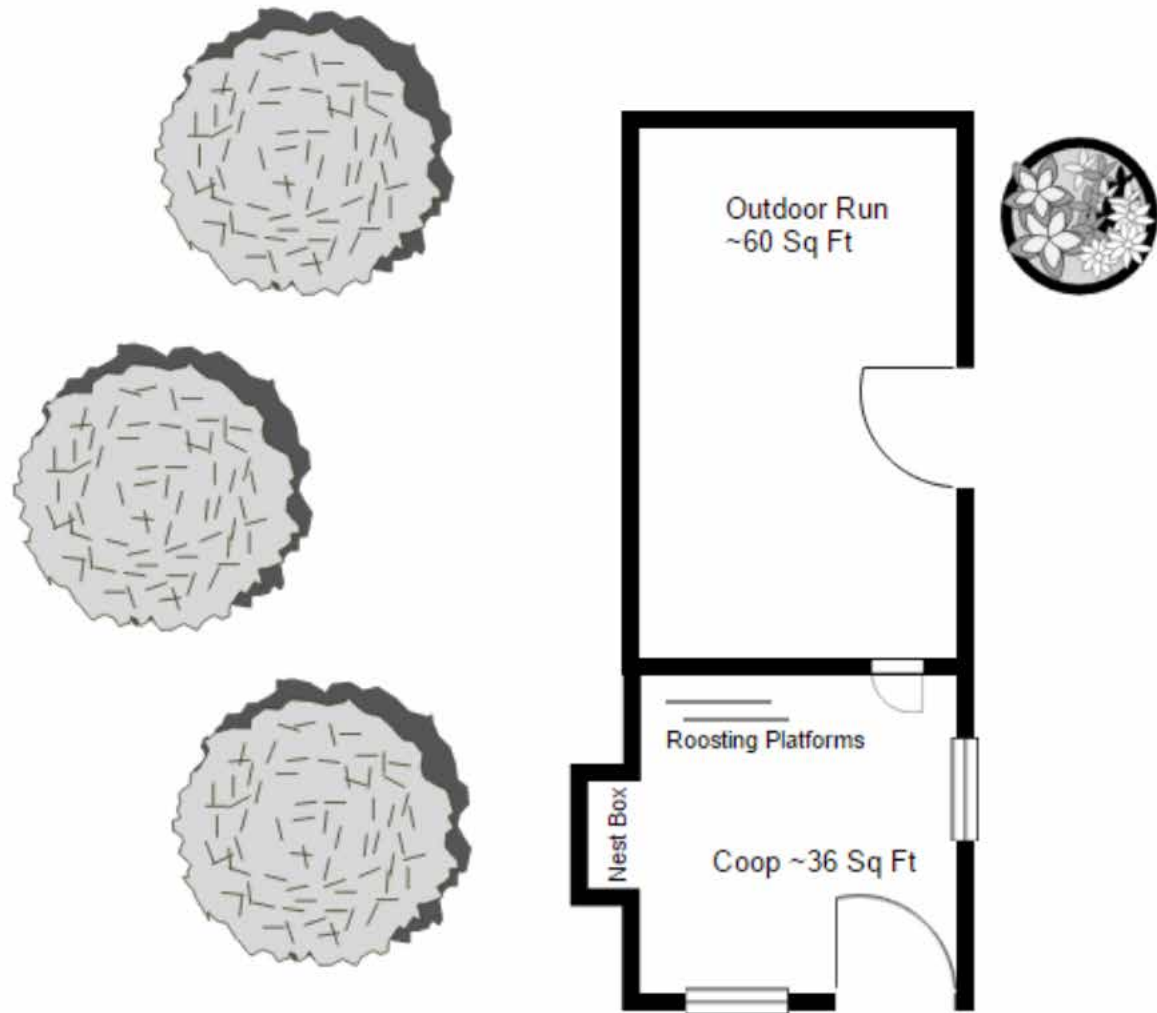
How to humanely euthanize a chicken by Dr. Mike Petrik:

<https://mikethechickenvet.wordpress.com/>

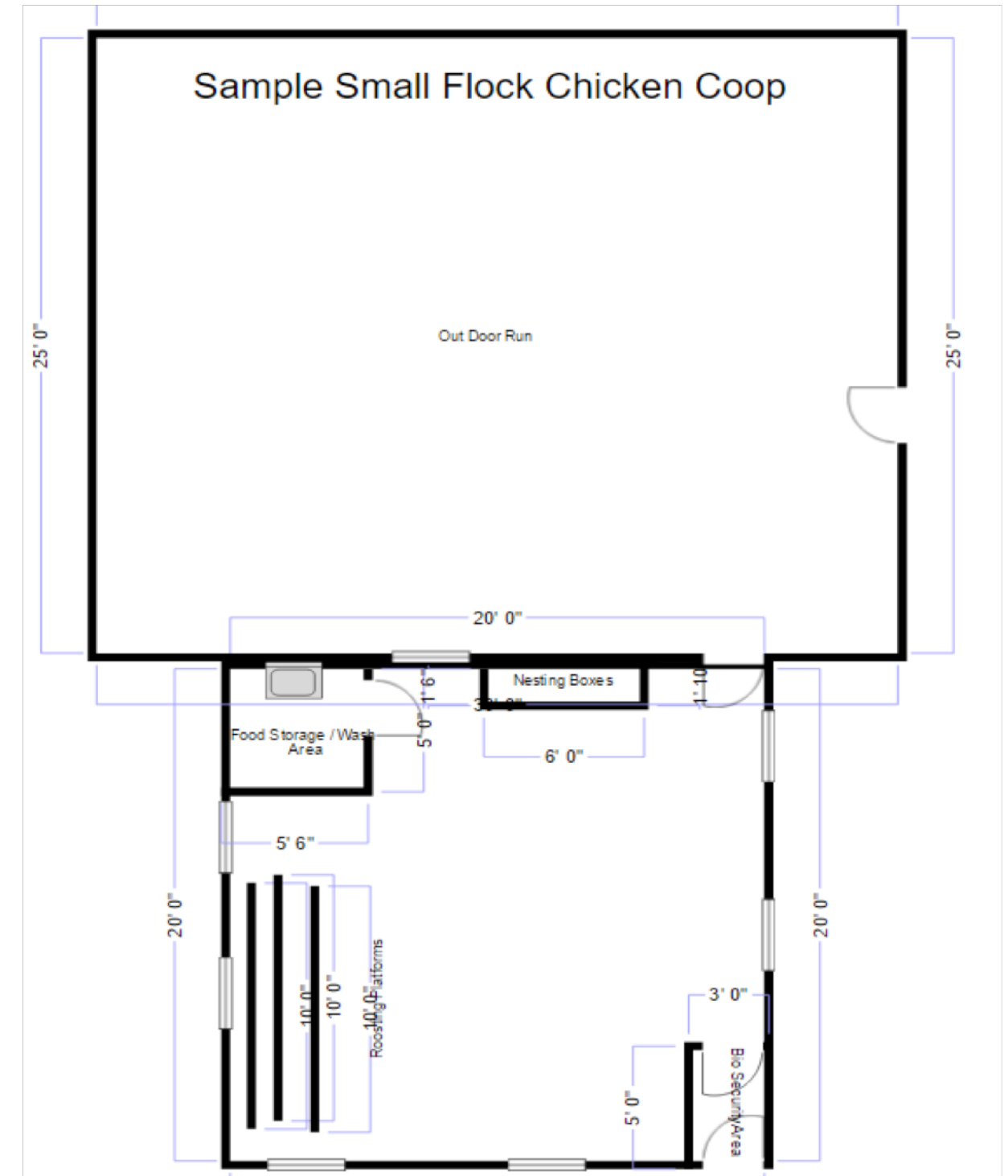
CHAPTER 13: BUTCHERING

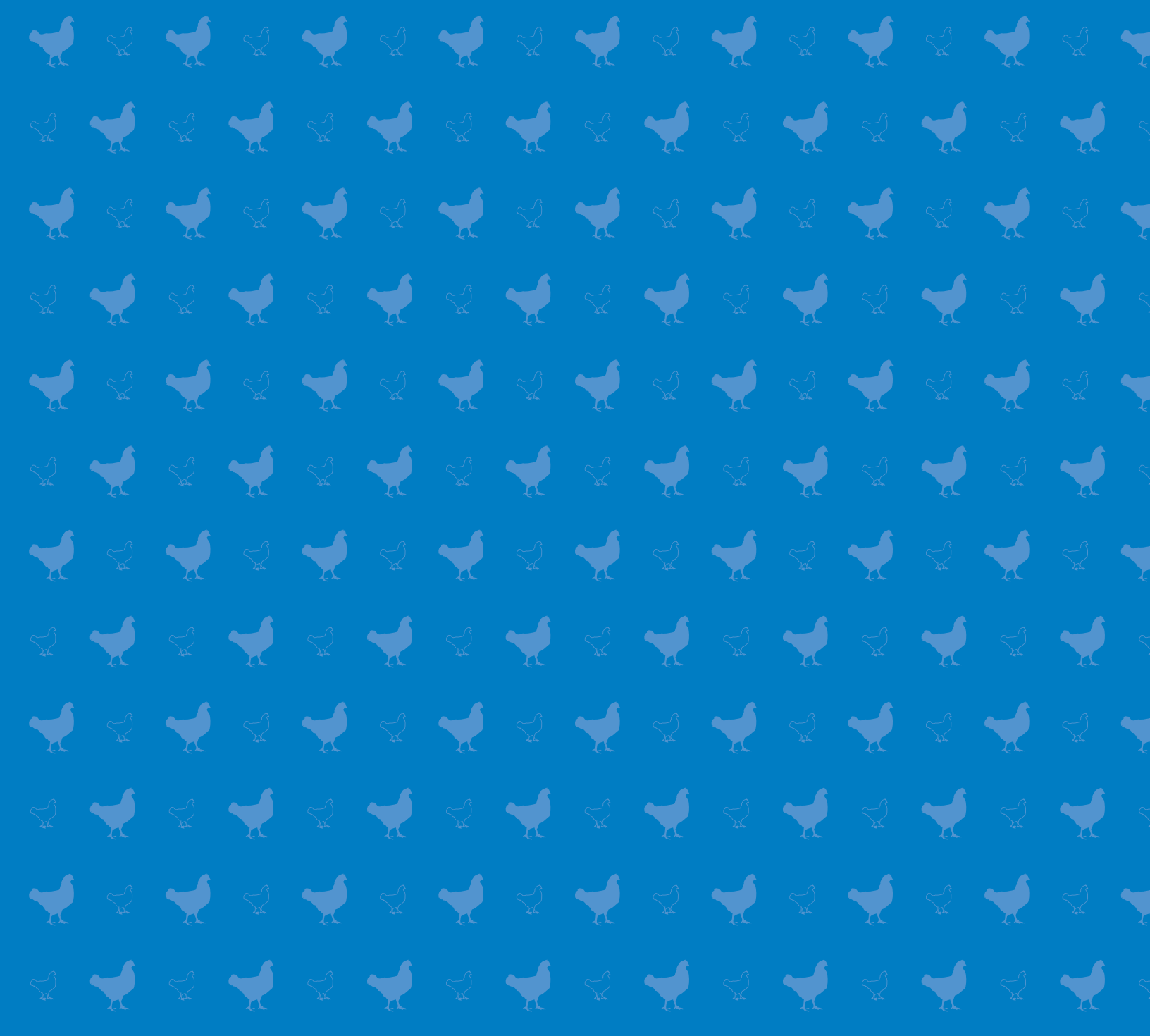
List of provincially registered meat establishments: <https://www.agric.gov.ab.ca/app68/foodindustry?section=category&cat1=Meat++Provincial>

SAMPLE PLAN FOR URBAN HEN COOP



SAMPLE SMALL FLOCK CHICKEN COOP





FOWL:

YOUR FEATHERED FRIENDS

Your Comprehensive Guide to Keeping Urban Chickens and Small Flocks

Alberta Farm Animal Care

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