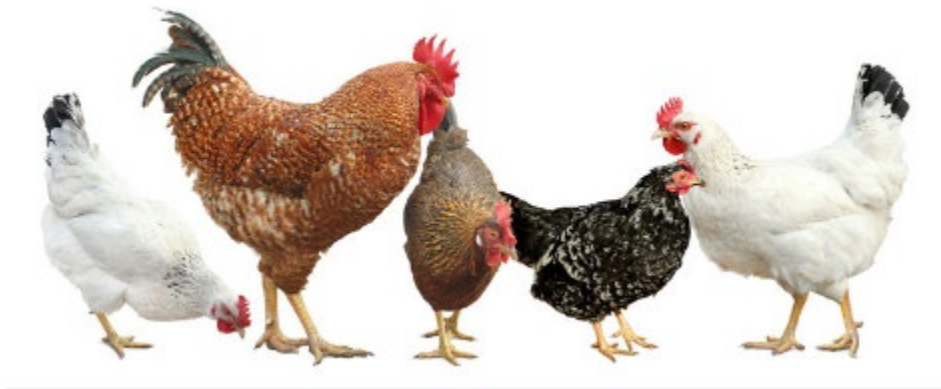


Guide for Backyard Poultry Flock Owners of New Brunswick



January 2024

Contributions made by Future GNB Students in the Summer Veterinary Program

Acknowledgements

The Guide for Backyard Poultry Flock Owners of New Brunswick is designed for people who are interested in or already have a small-scale poultry flock. The objective of the guide is to provide key information on areas that will help ensure the health and well-being of your flock. It will contribute to successful and responsible flock management. Chickens are the most common bird species raised and therefore is the focus of this guide.

Content was compiled from various sources of information, most notably:

- Animal Behavior and Restraint - The Center for Food Security and Public Health – 2012
- Animal Health Surveillance Information for Smallholders - Canadian Animal Health Surveillance System – 2020
- Backyard Poultry Flock Veterinary Medicine - Department of Agriculture, Aquaculture, and Fisheries, New Brunswick – 2021
- Breed of Livestock, Department of Animal Science – Oklahoma State University - 1997
- Commercial Poultry – Manitoba Poultry -
- Common Management-related Diseases in Backyard Poultry – MSD Manual Veterinary Manual - 2020
- Management of Backyard Poultry – Merck Manual Veterinary Manual – 2020
- National Farm Animal Care Council – Poultry Code of Practice – 2022
- Poultry – Agriculture British Columbia -
- Small Flock Poultry Health – Poultry British Columbia – 2011

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01 Starting Out

KEY POINTS

- Start small
- Before acquiring any birds, do research on potential suppliers or sources.
- Ensure you have the right supplies and equipment on hand.
- Select the right breed that best suits your operation and goals.

1.1 TERMINOLOGY

Poultry Terminology

Category	Description
Chick	A newly hatched chicken
Pullet	A female bird, usually under 1 year of age
Poult	Young turkey
Rooster	A mature male chicken, also known as a Cockerel
Broiler	Chicken bred for meat production, sometimes referred to as "meat kings," raised for 6 to 8 weeks
Roaster	Meat birds raised longer and heavier than broiler, usually raised for 12 weeks (about 3 months)
Egg Laying chickens	Breed of bird for laying eggs, usually starts laying eggs at 18-20 weeks (about 4 and a half months) of age with increasing day length. Minimum of 14 hours of daylight (photo period) needed for laying eggs.

1.2 HOW MANY BIRDS IS BEST TO START WITH

Start small (4-5 birds) depending on your goals. This will give you an opportunity to understand the requirements and commitment needed in raising birds. Once you become comfortable, you can build your flock carefully and slowly, looking for advice from experienced owners who have been successful in raising birds. It is also important to note that depending on where you are located there may be limits on flock size. It is a good idea to check local by-laws in your area. Ensuring there is veterinary care for your flock is important, so please call a local clinic or veterinary practice prior to obtaining birds to see if the clinic will be able to take you on as a client and provide poultry veterinary medicine in their practice.

1.3 WHERE TO PURCHASE BIRDS

Birds should be purchased from reputable suppliers. This can be from local groups, breeders, and/or various feed stores selling commercial poultry during "Chick Days". It is recommended to buy from one source, looking at their level of biosecurity measures such as poultry health status and vaccination history, their feed program, level of cleanliness, and from where and whom they obtain their birds from. Check with reliable references if possible. Use caution when buying birds on social media.


1.4 IMPORTANT QUESTIONS TO ASK THE SELLER

1. Are there any health concerns?
2. Did they receive any vaccinations, dewormers, or other treatments? If so, when and for what and the name of the medication used. Ask if they keep records on all this.
3. Who is your veterinarian and contact information.
4. What breed are they?

1.5 POULTRY BREEDS

There are many breeds within the poultry species. However, there are a few breeds such as some Heritage Breeds that are more hardy and better suited for an outdoor backyard production system. These breeds include:

Poultry Breeds

Species: Chickens	
Breeds	Characteristics
<p>Rhode Island Red and White</p>  	<ul style="list-style-type: none"> - This bird is the best for egg laying of the dual-purpose breeds (approx. 150-200 eggs/year) and is hardy. The average weight for the cock is 8 ½ lbs. and the hen is 6 ½ lbs. These characteristics make it a good breed for small flock owners.
<p>Wyandotte</p> 	<ul style="list-style-type: none"> - This is also a good breed for small flock owners as they are hardy. The Wyandotte is also a dual-purpose breed which can be used for eggs and meat. The hens also make for good mothers if breeding is being considered. The average weights are comparable to the Rhode Island Red and White.
<p>Plymouth Rock</p> 	<ul style="list-style-type: none"> - This breed is very docile and make for good mothers. These birds can be used for meat and as layers, but it is important to know which strain they come from as some are better for meat or eggs than others. The average weight of a cock is 9 ½ lbs. and hens are 7 ½.

1.6 SUPPLIES AND EQUIPMENT TO PURCHASE BEFORE BRINGING BIRDS HOME

Be prepared.

- Medical gloves
- Needles and syringes (various sizes) and an eye dropper
- Feeders and feed
- Waterers
- Bedding
- Disinfectant – e.g., bleach
- Housing set up
- A book (log-book) to write down when visitors, veterinarians come, illness and treatments provided

1.7 EMERGENCY MANAGEMENT

When caring for poultry it is important to have emergency measures in place, to effectively react to and treat any problems that should arise. Whether that emergency be disease, predators, weather issues or feed issues, it is important to have contingency plans in effect for a multitude of different emergencies. It is important to have plans designed and ready to utilize in the unfortunate event that an emergency occurs. Below are examples of things to consider when planning for an emergency.

DISEASE OUTBREAK PLAN

- Do you have a veterinarian?
- Can you quarantine sick animals away from the healthy ones?

SEVERE WEATHER PLAN

- Where can you keep your birds should a flood or wildfire occur?

EVACUATION PLAN

- If birds need to be moved, how and where can they be moved humanely? Who can help load them if needed?

A SHELTER IN PLACE PLAN

- Can you ensure you have enough feed/water/supplies for 21 days?

SMALL SCALE EMERGENCY PLANS such as escaped birds, loss of water supply etc.

- Keep a contact list including feed supply store, veterinarian etc.
- This information should be readily available to anyone in contact with your poultry.

02 Legal Requirements

It is important to note that depending on where you reside in New Brunswick there may be bylaws in your city or town stating how much poultry, if any at all, you may have on your premises. For example, in Fredericton city limits one is allowed to have three chickens per detached house. It is important before obtaining your flock, to investigate the local bylaws of your city or town. When obtaining birds for a backyard flock it is important to note that you are only able to obtain 199 birds for egg layers, 199 birds for meat chickens, and 199 birds for turkeys. This is mandated by the Provincial Poultry Marketing Boards. These boards are as follows: Egg Producers of New Brunswick, Chicken Farmers of New Brunswick, and Turkey Farmers of New Brunswick. Any bird numbers over 199 are legally bound to have a quota purchased from the Marketing boards.

2.1 PREMISE REGISTRATION AND PERMITS

LIVESTOCK PREMISES IDENTIFICATION SYSTEM IN NEW BRUNSWICK

The Livestock Premises Identification System, also known as LPID is an especially important system in New Brunswick that allows traceability of livestock, enabling a more rapid response to emerging outbreaks and emergencies (e.g., wildfires and floods). It is a very advantageous system, especially in preparation for, response to, and recovery from animal health issues and emergencies. Registering your livestock premises is not only beneficial to your province but to you as well. Being a part of the LPID system allows the government to contact you if there are any risks to your livestock based on your geographical location. This could be anything from concerning weather to an outbreak of a disease at a neighboring location.

The LPID system is especially important regarding poultry due to the increasing risk of any infectious high pathogenic diseases such as Avian Influenza in our province. Please note that if a neighboring flock were to be infected, your flock would be at a substantial risk of infection. Being registered allows for quick notification of local outbreaks so you may take the necessary precautions to protect your flock. In New Brunswick, the Livestock Premise Identification (LPID) is easy and is free. For more information on the LPID system and an application form, go to the New Brunswick Department of Agriculture, Aquaculture and Fisheries website and search under “livestock premise identification program”. You can also call any of the agriculture offices around the province if you have any questions (Bathurst: 506-547-2089; Moncton: 506-856-2277; Sussex: 506-432-2001; Fredericton: 506-453-2210; Wicklow: 506-392-5101 and Grand Falls: 506-473-7755).

PERMITS

Depending on where you reside in New Brunswick permits may also be necessary to legally keep poultry on your property. Permits can be obtained within your residing municipality office. Failure to obtain a permit before obtaining poultry may result in seizure of the poultry, as well as a potential fine.

2.2 POULTRY IDENTIFICATION AND MOVEMENT REPORTING

Identifying and tracking your own birds is very important, consider it good insurance – records of where your birds came from, where you bring your birds (e.g., to a show) or if you sell birds (obtain the buyer’s name and contact information). These can all be written in a logbook to track and trace your flock. This invaluable information can be very useful in the event of a disease outbreak in your flock.

2.3 CODE OF PRACTICE FOR THE CARE AND HANDLING OF POULTRY

The *Code of Practice for the Care and Handling of Poultry* is a valuable resource for all poultry producers regardless of if it is in a backyard or commercial setting to ensure the welfare and health of the animals you are responsible for. This code provides producers with guidelines for

acceptable standards for the care and handling of poultry. These codes and recommendations can be found on the *National Farm Animal Care Council* website, *under Poultry*.

2.4 ENVIRONMENTAL MANAGEMENT

To ensure the health and welfare of your birds it is important to integrate environmental management within your production system. Some general environmental management practices are listed below.

- Ammonia levels: if birds are housed indoors, especially during winter months, it is important to monitor ammonia levels on a weekly basis. It is recommended to avoid ammonia concentration above 10ppm. To reduce ammonia levels, increase ventilation, removal of manure, and reduce stocking densities are recommended. If you can physically smell the ammonia, then the levels are too high.
- Weather: As the weather changes it is important to check birds frequently during hot and humid conditions or extremely frigid temperatures. Ensure that poultry always have access to water and feed within their enclosure, especially during adverse weather conditions.

03 Housing and Management

Before bringing your poultry home, it is important to have housing and a management plan in place. Housing and management are two particularly crucial factors in ensuring your poultry are safe and healthy.

3.1 SHELTERS

Poultry shelters are an important aspect of backyard production systems. It is important that a shelter system is set in place regardless of whether you plan to have them housed indoors 24/7 or allow access to the outdoors. There are several types of shelters such as a chicken tractor, chicken coop, and a semi-permanent coop. Below there are examples of the types of barns listed above.

Chicken tractor



Semi-Permanent Coop



Permanent Coop



3.2 SHELTER REQUIREMENTS

Housing/shelter must provide the following for the flock:

- Appropriate space and a place to roost
- Ventilations
- Temperature regulation
- Protection from predators

One important requirement for the shelter or housing of the birds is to ensure that the components of the shelter are designed, constructed, and regularly inspected to avoid injury to your birds. Roosting sites should not cause injury to birds so birds should be monitored in the breast area for loss of feathers and bruising and the feet for sores if a roosting pole is too big or too small (narrow) for their feet.

3.3 OUTDOOR MANAGEMENT

Free-range poultry is not recommended due to the increased risk of disease transmission, predators, pests, and difficulty maintaining proper sanitation practices. However, if this is the case there are specific requirements that must be met and these can be found on the *National Farm Animal Care Council website, under the Poultry Code of Practice*. Creating a safe fenced-in area with a solid roof is a good way to have poultry outdoors.

3.4 SPACE ALLOWANCE

Space allowance is highly dependent on the number of birds or stocking densities of the flock. Stocking density is determined by the mass of birds per unit of available space in the interior shelter and is expressed as kg/m². This can be affected by housing, ventilation, feed, and water access. Some requirements for space allowance can be found below:

- Birds must have space to move freely, stand normally, stretch wings with sufficient space, and turn around.
- All birds must have adequate space for all birds to sit at the same time

- Stocking densities cannot exceed the available equipment (e.g., feeders, waterers, nest boxes) and barn space.
- For guidance on managing stocking densities and space allowance consult with a specialist (e.g., poultry veterinarian, breeder company representative, etc.).
- There should be space for a ‘dust bath’ as well.

More information about space allowance and stocking densities can be found on the *National Farm Animal Care Council website under the Code of Practice for Poultry*.

3.5 SUNBURN PROTECTION (SHADE)

To prevent sunburn and overheating in birds it is important to provide them with some shade for them to maintain their normal body temperature of 40-43 degrees Celsius (105-109 degrees Fahrenheit). The shade can be natural or man-made but is important to provide the birds with some relief from the sun. When the environmental temperatures exceed 24 degrees Celsius birds will show signs of heat stress. When birds are overheating, clinical signs to look for are

- Red flushed faces, comb, and wattles
- Rapid panting
- Open-mouthed breathing
- Wings spread out

The ideal temperature for birds is between 18-24 degrees Celsius with approximate humidity of 40%. Having your shelter constructed with proper ventilation, which may include the addition of fans, will aid in the proper care for your birds. The addition of a controlled intermittent water spray may help keep the birds cooled off too in very hot weather.

3.6 HANDLING AND RESTRAINT AREAS

It is also important to consider handling and restraint areas when building and planning housing for a backyard poultry flock. These areas are important when handling the birds and ensuring

that proper equipment or tools are available for the purpose of restraint/handling. It is also very important to know how to handle and restrain birds in the proper manner as well.

3.7 HOSPITAL PENS

Hospital or sick pens are also an important part of housing for your flock. Always have traffic flow end with the areas of the hospital pens being the final place of visitation of the chicken quarters. The pens are also important when having to quarantine a new bird prior to introducing it to the flock, but also for when a bird becomes sick and should be isolated from the flock. Both reasons are an important aspect of reducing disease transmission to your flock such as Infectious Laryngotracheitis (ILT) and Avian Influenza Virus (AIV). It is also important to keep in mind that when there is more than one bird sick, if possible, allow each sick bird their own sick pen.

3.8 CLEANING AND DISINFECTION

Sanitation and disinfection protocols are crucial for disease prevention and control. Disease prevention and control are obtained by regularly cleaning and disinfecting equipment and housing facilities as needed. This is to prevent and/or reduce the accumulation of pathogens and organic wastes. It is necessary for poultry owners to clean and disinfect buildings and equipment after an outbreak from an infectious disease as stated by the *National Farm Animal Care Council Codes*. If an outbreak of a disease has occurred, it is recommended to contact a veterinarian for advice on treatment, cleaning and disinfectant protocols and downtime following the outbreak. In general, it is recommended to physically clean, wash, disinfect and dry between batches or flocks. Steps for proper disinfection can be seen below.

1. Read cleaner or disinfecting labels. Make sure there is a Materials Safety Data Sheet (MSDS) with the product to understand precautions that may need to be taken.
2. Wear protective equipment

3. Remove all organic material first (e.g. manure, bedding, feed) **BEFORE** applying any disinfectant products. Reading the instructions on proper use for the disinfectant will save on time and having to repeat cleaning again. Disinfectants need to be applied to a dry, clean surface.
4. If the product needs to be prepared calculate the surface area that needs to be disinfected and prepare product solution properly following the ratios to mix if water or other fluid is used.
5. Use the disinfectant solution as directed on label (e.g., surface environment, contact time, if product needs to be rinsed, safety information, etc.)

04 Feed and Water

Feed and water are two of the most information factors to consider when obtaining a flock. Knowing your flocks' nutritional needs could be the difference between a flock surviving or not.

4.1 FEEDING YOUR BIRDS

Feeding your flock, the appropriate diet is crucial for the health, productivity, and wellbeing of your birds. It is important to match the diet to the life stage, type, and purpose of the bird. For example, there will be certain feed requirements and supplements that are different for chicks vs. full-grown birds and laying hens vs. meat kings.

4.2 POULTRY NUTRITION

The nutritional requirements will change as the bird grows and develops, keeping in mind the production purpose for the bird, sex, etc. At the different life stages the birds will require different energy, protein, vitamins and minerals, and alternative feed ingredients. It is best to purchase a commercial feed which is balanced for poultry instead of making your own feed at home.

- **Chicks:** Chicks require a commercially prepared *chick starter* that is in crumble form which includes all the nutritional requirements the chick will need to get started. For laying egg breeds, these chicks remain on starter for about the first 6-8 weeks and for meat breeds, these chicks remain for only about the first 3 weeks of age. The starter feed for all chicks should contain a coccidiostat which fights off a common chicken parasite which can cause gastrointestinal damage.
- **8 weeks to 18+ weeks:** As the birds grow the amount of protein will increase with age and it is important to obtain a feed that will match the requirements of the birds'

nutritional needs. *Grower feeds* will differ for egg-laying breeds vs meat breed birds. It is also important to include supplements such as vitamins and minerals which they cannot obtain from feed alone.

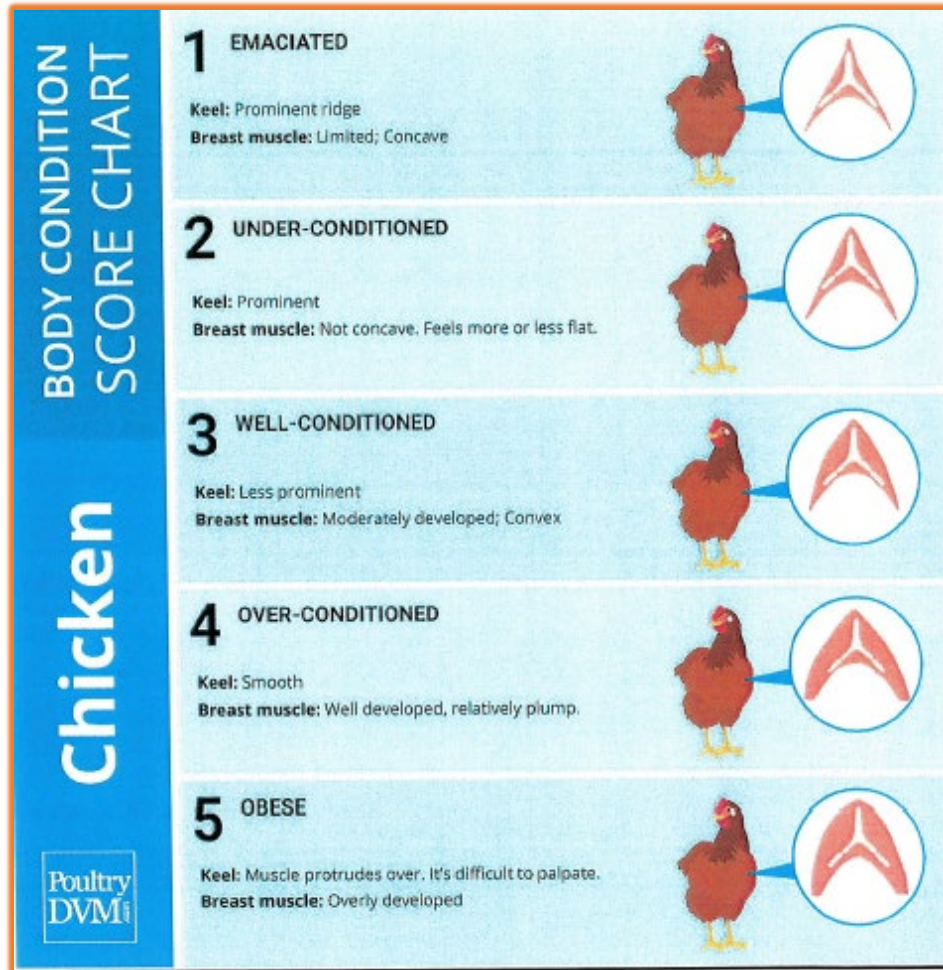
- **Laying Hens:** Birds used for egg production require an additional source of calcium in their diet. Limestone or oyster shell are a simple and easily accessible calcium supplement to prevent thin shelled eggs, reduced egg production, cannibalism, and egg eating. A calcium supplement can be given by free choice to the birds.
- **Roosters and Cockerels:** They should not be fed or have access to the laying ration as the protein and calcium levels are too high. The risk of developing “Gout” is much higher in male birds consuming these rations.

For more resources on feed nutrition and suggested feeding programs you can visit the Manitoba Agriculture – Basic Feeding Programs for Small Chicken Flocks website. You can also contact your local veterinarian or the Department of Agriculture Poultry veterinarian in Fredericton for more information.

4.3 FEED QUANTITY

Feed intake and quantity requirements for chicken can differ depending on the age, breed, purpose, sex, and environment the birds are in. It is common to allow birds free choice and have 24-hour access to feed. This can be done with broilers or with laying hens and makes things easy for the producer. However, you will still need to ensure your birds are obtaining the proper amount of feed required, and the quality of feed is good. Do not let feed pile up on the ground or in the feeders and become caked. Removal of such feed should be done daily.

If the body condition score of your flock is greater than the recommended score, then you should consult with a professional (nutritionist, veterinarian, etc.) to potentially reduce feed quantity. The same steps should also be taken if you find your birds are in poor body condition. Below is a chart of body condition scores and how to perform them on your flock.



4.4 FEED SAFETY

Purchasing feed from a reputable source is a crucial part of feed safety. It is often beneficial to get professional advice from a qualified advisor (e.g., poultry nutritionist) who can ensure that the rations provided for your birds are balanced. Commercial producers can also be a great resource for getting advice on where they get their feed from. Some simple steps towards feed safety are:

- Store feed in a dry and secure area (away from rodents)- usually metal storage bins are best.
- Do not feed visibly contaminated or moldy grain to birds
- Clean up spills to prevent the attraction of pests and predators

4.5 FEEDERS

There are many types of feeder equipment available for poultry. It is important to ensure that the equipment is maintained and in good working order, birds have easy and uniform access to the feed and water and that feeders are cleaned often to avoid birds from getting sick. Below you can find a table with recommended guidelines of feeders for feed and water per x number of animals.

Feeder Guidelines

Feed	
Pan Feeders	65 birds ^a per pan (33cm [13in] diameter)
Trough Feeders ^c	2.5 cm (1 in) per bird ^b
Water	
Troughs	2.5 cm (1 in) per bird ^b
Bell Drinkers/Cups	1 per 120 birds
Nipples	5-20 birds per nipple ^a

a. Take bird weight/size into consideration

b. Assumes that both sides of the feeding trough are available to the birds. If not, then double the space allocation per bird

c. Perimeter space for round feeders and waterers can be calculated by multiplying linear trough space by 0.8.

Pictured are some different troughs and feeders used in backyard flock production.

Pan Feeders



Trough Feeders



Water Troughs



Bell Drinkers/Cup



Nipples



4.6 WATER

Water is the most important nutrient to poultry. Water and its quality will be the first thing to cause death in your flock if there is not an ample supply of good quality water available to them. Poultry weight is made up of 70% water, and their eggs are 65% water. There is no definitive water requirement for poultry as this can depend on age, body condition, diet, temperature, etc., however they will consume twice as much water than feed. Ensuring birds have 24-hour access to water that is free of pathogens is key to preventing disease and illness in your flock. In the winter ensure that water does not freeze either by having a heated water source, or constant replenishing. There are some important requirements stated in the *Poultry Code of Practice* by the *National Farm Animal Care Council* to ensure clean water for the birds:

- Water should be tested annually, unless municipal water is used
- Water must be monitored for any changes (odor, color, rust, etc.)

- Ensure all birds have equal access to water- that no birds are being bullied away from all sources of water.
- Monitor water equipment for proper operation and cleanliness

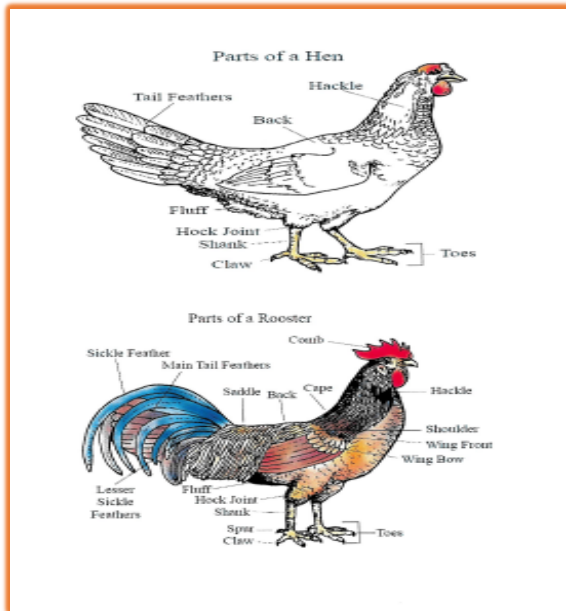
Below you can find a table that has specific water consumption parameters for commercial production setting that can be used as a reference for what a healthy bird should have for water intake.

Water Consumption

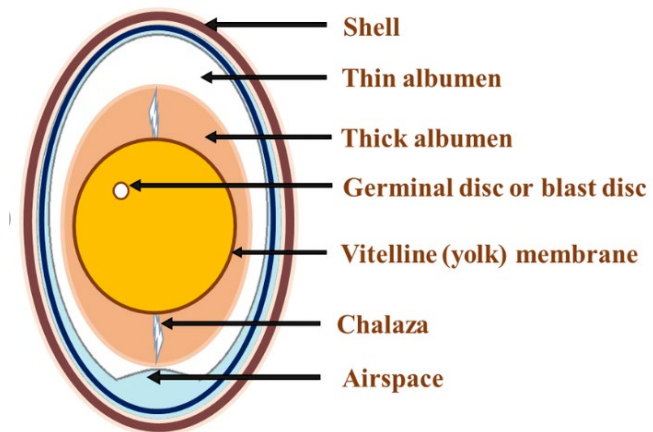
Age (week)	Chickens (liters/100 birds/day)	Turkeys (liters/100 birds/day)
1	2-3	7-8
2	4-6	9-10
3	6-9	14-32
4	9-10	14-32
5	10-11	14-32
6	13	14-32
7	15	35-57
8	17	35-57
9	19	35-57
10	20	35-57
11	-	35-57
12	-	35-57
13	-	35-57
14-19	-	58-70
Adult	*Up to 225mls (about 7.61 oz)/bird/day	58-70

05 Handling

5.1 POULTRY HANDLING TERMINOLOGY AND CONCEPTS



Understanding the anatomy of poultry and using proper terminology is important when handling your birds. This allows for proper communication with a professional when handling the birds, but also for understanding where the appropriate location for handling and restraining is. To the left you can find a labeled diagram of the anatomy of a bird and below the components and structures of an egg.



Schematic diagram of egg anatomy.

When working with your poultry it is important to remember that any changes to their environment, temperatures, or airflow can have an impact on your birds. It is also important to understand that any visual distractions, unknown people, different or loud sounds, shadows, moving objects, can scare poultry and make them either stop or fly away from you. Ideally daily

contact with the birds is good to reduce stress when handling them as they are already used to the owner's presence.

5.2 FLIGHT ZONE

Animals and birds have a flight zone. Depending on how socialized the animal is, determines the size of their flight zone. The flight zone is the area surrounding the animal where a person may approach the animal or bird before it moves away. When one understands the flight zone of the bird it is easy to move it ahead or backwards. This can be accomplished by either standing in front or behind the balance point.

5.3 SIGNS OF STRESS

To see if your birds are stressed you can step back and remove the pressure from them. The following signs are indicators that your birds are stressed.

- Escaping the handler
- Jumping on other birds
- Piling or crowding into a corner
- Rigid posture
- Head and neck extended

5.4 INDICATORS OF DISTRESS DURING AND AFTER HANDLING

Signs of stress in poultry can be seen by a multitude of behaviors, common ones include

- Loss of appetite
- Lethargy
- Aggression and fights
- Less egg production
- Loss of feathers
- Gaping/open mouth breathing

- Muscle tremors
- Vocalization

5.5 BIRD RESTRAINT

Before handling or restraining your birds, it is important to examine the birds from a distance to assess the state of the flock and individual birds. When birds are healthy and under the right conditions, they should be bright, alert, responsive (BAR), interacting with the flock, eating, and not demonstrating abnormal behavior. For a physical exam or handling the birds it is important to use proper bird restraint techniques. Below are some pictures to show how birds can be restrained for examination or for moving.



Two hand technique – legs: The picture on the left is demonstrating the feet/leg technique. The handler is holding the legs close to the body of the bird and restraining the wings with their own body.



Arm and hand technique: The method demonstrated in the picture on the left is using one arm, holding the bird close to your body to restrain one wing and breast while the other wing rests in your chest or abdomen.



Two hand technique - wings: This method in the picture on the left is demonstrating holding the bird with two hands over the wings and breast.

It is important to note as well that birds are prey animals and they scare/stress easily. When restraining them remember to:

- Move slowly
- Talk softly or be quiet.
- Avoid pressure on thorax/breast area and ensure birds are still breathing
- Carry bird upright
- Support birds' body from underneath

5.6 POULTRY HANDLING TOOLS

Regarding poultry, manually restraining them is the most customary practice of restraint, although if one were to slaughter their poultry, using a cone is also quite common. Cones are an easy restraint method that allows easy access to the neck and head area to quickly and cleanly slaughter poultry.

You can also use nets, and/or boards with the lights out to quietly herd them into a corner to physically pick them up.



06 Reproduction Management

6.1 BREEDING

The recommended ratio for hens to roosters for breeding purposes is 10-1. This can change slightly based on breed but is usually the rule of thumb.



6.2 GESTATION

Fun Fact: Once the Rooster has bred the hen, sperm will remain within the reproductive tract of the hen for two weeks. This means a hen can lay and hatch up to 10-14 fertilized eggs from one breeding.



When a fertilized egg is laid, it takes 21 days (about 3 weeks) for a chick to hatch. During this time, the hen will sit on her eggs to keep them warm.

6.3 LAYING AND HATCHING

A natural behavior of hens is to express broody behavior. Broody behavior is when a hen demonstrates a desire to sit on eggs to hatch them.

For a fertilized egg to hatch into a chick, it must be incubated for the full 21-day gestation period. Incubation can be done by the hen naturally or once the egg is laid placing it into an incubator – after the 21-day gestation period chicks will begin to break through the eggshell using a special part of their beaks known as the egg tooth, which is a sharp spike located on the tips of their beaks.

If incubation is done by the hen it is recommended to let the mother aid in hatching and stay away till the chicks emerge themselves. However, if incubation occurs in an incubator, it is important to check periodically around the 21-day point to ensure all chicks are not having any problems breaking through or drying off after hatching.



07 Disease Prevention

7.1 PRINCIPLES

Biosecurity is any measure that prevents infectious disease, pests, and/or any biological threats from infecting your poultry, spreading through your poultry, and infecting other species of animals you may have. It can also be beneficial to have a biosecurity sign with the owner's telephone numbers up outside the barn entrance to prevent visitors from entering your flock space without you present.

7.2 WORKFLOW

It is important to monitor your poultry daily. When working with your poultry it is good practice to wear separate clothing and footwear and to wash your hands with soap and warm water before and after engaging with your poultry. If any poultry have been placed in sick pens, they should be examined last during daily check-ins to avoid spread disease from these sick poultry.

7.3 VISITORS

To maintain the health of your flock, visitors should not have access to your birds. However, if visitors do come, you should always accompany them and have outerwear for the visitors to wear (e.g., boots and coveralls which will remain on your farm). Making sure the visitors have not been to other flocks (commercial or backyard) in the last 24 hours is also a good idea. It is very important to keep a logbook for visitors to sign when they visit.

7.4 FEED AND WATER SOURCES

When purchasing feed look for a reputable source and try to stick with the same feed source throughout the duration of your poultry's lives. Storage of your poultry feed is important; feed

should be kept in a sealed dry container. There should be no means for wildlife, rodents, or insects to contaminate the feed. Clean water sources should be accessible 24/7 and changed out frequently, poultry are more apt to consume the appropriate amount of water when the water is frequently changed. Stale and old water is also more susceptible to harboring harmful bacteria.

7.5 INTRODUCTION OF NEW STOCK

Introducing new stock to your flock is not recommended as this is one of the easiest and most common methods of disease transmission to your flock.

If you do wish to add new stock, certain precautions are necessary to limit the possibility of a disease outbreak to your original stock. Purchasing new stock should be done from a reputable breeder and vaccination records should be obtained. It is recommended, if possible, to get your veterinarian to speak with their veterinarian, to make sure there are no health concerns and to get a more accurate background of the place you are purchasing from. If birds are purchased, they should be placed in a quarantine pen immediately, and monitored until you are certain they pose no risk to your current flock.

7.6 QUARANTINE

A quarantine area should be put in place for new birds or sick ones. This area should be away from all other livestock and other birds so that there is no chance for any physical contact to occur between animals. 4 weeks or more is the recommended time to keep new poultry isolated. Although disease may still occur when new birds are purchased, the act of buying healthy birds from a reputable breeder/seller and isolating them for a period will help protect your original flock. Sick birds who were placed in a quarantine area should only return to the flock once they become healthy again and pose no risk of being a silent disease spreader.

7.7 FLOCK HEALTH

It is important to monitor your poultry for any sickness. If they appear sick you should immediately move them to a sick pen. A veterinarian should be called if your poultry seems ill,

or multiple mortalities have occurred, as this could be an indication that there is an underlying problem. Vaccinations are only recommended if needed, and common vaccinations are found in section 9.6. It is important to consult with a veterinarian to see which vaccines they recommend as this may vary based on breed of poultry, region, where you obtained them, and what you wish to do with them. Keeping records (a book) is also a crucial aspect of flock health as this ensures all information of diseases, preventative care, and treatments are recorded and readily available when consulting with a veterinarian, or other professionals, as well as for the movement of the flock if necessary. The most important thing to know is what a normal healthy flock looks and behaves like- then any deviation from that will be easier to spot quickly.

7.8 MORTALITIES

If mortalities are occurring in the barn, it is important to remove all dead birds immediately to hopefully reduce the disease from spreading to your other poultry. Dead birds should be removed to a safe disposing site, such as a composting or burial site away from the barn where other birds and animals will not have access to deceased birds. If deaths are unexpected your veterinarian should be contacted immediately. Any equipment you use to move dead birds should be thoroughly cleaned and disinfected as well (shovel, wheelbarrow etc.). You should consider a **flock disposal plan** for your animals in the event your flock should die (e.g., where to bury/compost, how deep a hole, where is the well for drinking water, is site/land near a watershed/river etc.). The disposal site should also take into consideration the litter, feed, and manure that will have to be removed and disposed of as well as the birds.

7.9 FENCES

It is advised to fence in backyard poultry and not have them loose on your property. Fencing in your flock protects them from predators, diseases and ensures that they remain on property. This also helps keep good neighbor relations too. Appropriate poultry fencing should be used and extend into the ground deeper than a foot to prevent predators from digging under it. Covering the top of the enclosure with a solid material (e.g., plywood) is also a wise decision to

avoid prey and other avian species from entering the enclosure from above. Enclosing the flock is also important to reduce the risk of transmission of disease. The type of fencing can be the owners' preference; however, it should meet the requirements mentioned.



7.10 CLEANING AND MAINTENANCE

Cleaning and maintenance should be done regularly to prevent disease as much as possible. For tips on regular cleaning refer to chapter 3 section 8.

In the case of a disease outbreak cleaning methods may change. Depending on the disease, different chemicals and protocols may be required. If a disease is running through your flock, completely changing all organic material in your pen may be a good first step. However, determining what you have is always a great idea as certain cleaning and disinfectants may be required to remove the cause of the disease in your flock. Depending on the disease it may need to be reported and appropriate measures must be taken to prevent the disease from spreading.

Your veterinarian should be able to recommend steps for controlling disease including cleaning & disinfection protocols suited for each situation.

7.11 RODENT CONTROL

Rodents are hosts of several infectious diseases which can be spread to the flock if not controlled. Here are some suggestions for preventing your flock from rodent exposure. These preventative measures include:

- Reduce entrances, nesting sites, food, and water sources
- Ensure on-farm storage locations are tightly secure
- Monitor rodent activity on a regular basis
- Keep lawns mowed and maintained

For more information on rodent and vermin control refer to Appendix K – Resources for Further Information on the National Farm Animal Care Council – Code of Practice for Poultry website.

08 Bird Health and Well-being

8.1 PRODUCT TERMINOLOGY

Term	Description
Dewormer	Kills internal worms (parasites) your poultry may have as well as any external parasites.
Antibiotic	Treats/eliminates any bacterial infections/bacteria.
Vaccine	Stimulates the immune system for specific viral and bacterial pathogens to provide a certain level of protection.
Anti-inflammatory	Reduces pain and inflammation
Vitamin/Mineral	Supplemental vitamins or minerals

8.2 SIGNS OF POOR HEALTH

An important aspect of flock management is to be able to recognize signs of poor health as soon as they arise as poultry are highly effective at hiding their illness or ill-thrift as a basic survival instinct. The clinical signs will depend on the body system that is affected. Some early signs of illness that are not specific to the body system include:

- Depression
- Changes in food and water consumption
- Dull feathers

- Abnormal feces
- Lameness or favoring in limbs
- Decreased activity and isolation or hiding
- Nasal or ocular (eye) discharge
- Swelling around nose and eyes
- Soiling of the feathers around the nares, vent, shoulders, or eyes

8.2 FLOCK HEALTH PROTOCOLS

Establishing flock health protocols with the aid of your veterinarian before the arrival of your poultry is a key step in ensuring the continued wellbeing of your flock. Key protocols that should be set up include

- Vaccination and deworming
- Biosecurity
- Humane euthanasia and disposal plans

8.3 TREATMENT PLANS

Treatment plans should always be put in place in case any of your flock do become ill. Setting this up with your veterinarian is recommended, as they can recommend common medication to have on hand in case of emergency. Your veterinarian should also be able to show you methods of medication administration, so you are able to perform minor medical care without the need for a veterinary call, or the utilization of a virtual visit.

8.4 MEDICAL SUPPLIES AND EQUIPMENT

Your veterinarian will perform medical treatments and have the proper equipment to do so, but as a flock owner it is important you have some supplies in case of emergencies or minor treatments you can perform without the aid of a veterinarian. Some common supplies include

- A medical kit that has some syringes, and needles of varying sizes (sizes will vary based on flock type, consult your veterinarian on which sizes you should carry), and medical gloves (latex or nitrile)
- A cone (for restraint purposes) if needed
- Eye dropper
- Disinfectant spray or solution (iodine based is a suggestion)
- Nail clippers and scissors
- Antibacterial eye drops
- Vet wrap, gauze, and foam/sponge pieces.
- Supplementary care equipment which includes but is not limited to electrolyte packs, minerals, and dewormers.

8.5 VACCINATION GUIDELINES

Vaccinations are an important aspect of bird health and well-being to reduce susceptibility of specific infectious diseases. A vaccination history of your birds before you purchase is recommended. There are various products used when vaccinating birds. The two distinct types of vaccines are modified live and killed. Modified live vaccines contain modified or changed pieces of a virus or bacterium that is given to your birds to stimulate their immune system to fight the disease. A killed vaccine contains killed pieces of the virus or bacterium for which your bird is given to stimulate an immune response to also fight disease. In New Brunswick, the Department of Agriculture, Aquaculture, and Fisheries currently offers the Infectious Laryngotracheitis Virus vaccine **ONLY** for birds going to poultry shows within the Province. If you have any questions regarding the ILT vaccine for show birds, contact the Department's poultry veterinarian. Any of the other poultry vaccines are only used in commercial poultry production, such as Marek's Disease (MD), Infectious Bronchitis Virus (IBV), Infectious Bursal

Disease (IBD), NewCastle Disease (NCD), Chicken Anemia Agent (CAA), Avian Encephalomyelitis (AE), Mycoplasma synoviae (MS), and Mycoplasma gallisepticum (MG).

Having a discussion with your veterinarian about poultry diseases is important. Below you can find a table which has a list of a few common bird diseases that have been diagnosed in NB:

Infectious Diseases in Poultry

Viral Diseases	Bacterial Diseases	Parasitic Diseases
Infectious Bronchitis	Bordetella avium (Coryza)	Coccidiosis
Infectious Bursal Disease	Pastuella multocida (Fowl Cholera)	Trichomonosis gallinae
Newcastle Disease	Salmonella enteritidis	Cryptosporidiosis
Infectious Laryngotracheitis	Salmonellosis – disease caused by other types of Salmonella bacteria.	Various mites- red mites, wing mites, scaly leg mites, and Northern Fowl mites.
Avian Encephalomyelitis	E. coli (Colibacillosis)	Various fleas
Reovirus		Various worms
Chick Anemia Virus		Lice
Marek’s Disease		
Hemorrhagic Enteritis of Turkeys		

8.6 CONTROLLING PARASITES

Parasites are one of the most complex pathogens due to their diverse and complicated life cycles and pathogenicity. It is therefore important to have sufficient and effective parasite control programs to defend against the different types. There are protozoan parasites, ectoparasites (external parasites which live on the skin of the bird), and endoparasites (internal parasites or commonly known as “worms”). A common method of treatment for ectoparasites is the physical removal of the parasites once observed. However, the use of anthelmintics,

anticoagulants, and insecticides will need to be used appropriately. Below is a list of common poultry parasites that can be present in your area.

- Trichomonosis gallinae
- Cryptosporidiosis
- Chicken mite (*Dermatophagoides gallinae*)
- coccidiosis
- Northern fowl mite and red mites
- Scaly leg mite
- Chewing lice (e.g., *Menopon gallinae*)
- Stick tight flea (*Echidnophaga gallinae*)
- Western chicken flea (*Ceratophyllus niger*)
- Sand fleas (people that use sand for litter)
- Black flies (disease carriers)
- Soft ticks (e.g., *Argasidae*)
- *Heterakis gallinarum*
- *Ascarids galli*
- Histomoniasis
- Gape worms
- Round worms
- Leucocytozoonosis – ducks in Spring and Summer. There is a need to control blackflies as they act as the vector of this blood protozoa.

For a specific parasite control program, it is important to contact your veterinarian. A fecal sample is always helpful to identify internal worms in your flock and aiding in a treatment plan.

8.7 DISEASE MANAGEMENT

Poultry disease is transmitted in a multitude of ways, and it is important as a flock owner to be aware of the potential ways your flock could become diseased and sick. Some of the potential

ways diseases can come onto your farm include the introduction of a new bird, wildlife, contaminated clothing and foot wear, contaminated food, water or bedding sources, contaminated farm equipment, and potentially dead animals that are close to your flock.

Refer to section 7 for more information on disease management and prevention methods.

8.8 COMMON DISEASES OF BACKYARD FLOCKS

There are quite a few common diseases of outdoor production that may occur within your flock. Most can be related to management practices and could be prevented. Common management related diseases in your backyard poultry are listed below with a brief description.

Trauma:

- **Clinical Signs:** This is the most common condition of backyard poultry. This can be caused by predator injury, entrapment of limbs in fences, cannibalism, crushing injuries, or self-mutilation. Clinical signs will vary depending on the type of trauma.
- **Prevention:** Ensure the environment of the poultry is safe with no potential threats present and remove birds from the flock that may be harming themselves or others.
- **Treatment:** Supportive care is the best method. Birds can often withstand some injury and recover on their own, however, providing warmth, adequate hydration, and force-feeding with poultry friendly feeds such as lettuce, kale, spinach, swiss chard to name a few or feed replacement may speed recovery. Antibiotic cream and parenteral antibiotic can be used for the treatment of superficial and deep wounds. If no improvements have been made over 2-3 days the prognosis may be poor, and consultation with a veterinarian is recommended.

Fatty Liver:

- **Clinical Signs:** Characterized by the fat deposition on the liver, clinical signs present as sudden drop in egg production, increased mortality, obesity, pale combs, and wattles, which may also be covered in dandruff.

- **Prevention:** Prevention is key. This includes adequate access to the outdoors for exercise and controlling the diet. Feeding lipotropic agents and dietary supplements may also work.
- **Treatment:** Treatment is prevention. For further questions consult with a veterinarian.

Osteoporosis:

- **Clinical Signs:** Unable to stand and brittle bones. Palpation of the ribs indicates a deviation in a sigmoid shape or fractures at the junction of the sternum and vertebrae. Some birds are unable to stand or move. Acute death may also occur.
- **Prevention:** Adding oyster shells or other large particle calcium sources can be added to the diet. However, the oyster shells should not be ground, but have a large particle size to slow movement through the intestinal tract and ensure proper absorption of calcium can occur.
- **Treatment:** If the disease has severely progressed treatment is required. There are several options for treatment depending on the severity of the disease. Administration of oral vitamin D₃ in the drinking water or intramuscular vitamin D₃ can be used. If severe signs are seen, then intravenous or subcutaneous placement of calcium gluconate may be done.

Cloacal Prolapse:

- **Clinical Signs:** Temporary prolapse of the vent is normal during egg delivery. If there is slow retraction of the vent it may attract cannibalism, trauma, and edema formation leading to prevention of the retraction of the vent. This can be due to obesity or poorly developed hens. It may also be caused by poor photoperiod management of the pullets before they start laying.
- **Prevention:** Controlling obesity, stocking densities, lighting schedules, proper beak trimming are important methods of prevention.
- **Treatment:** Consult a veterinarian. The only treatment may be to cull the bird.

Egg Binding:

- **Clinical Signs:** Eggs binding can range from simply laying large eggs from young birds, or complete obstructions. Eggs can get stuck just inside the vent area. This is often due to obesity and egg production in pullets which are too young.
- **Prevention:** Ensuring that birds are in the appropriate body condition and age range reduces and can prevent the risk of egg binding in your flock. Refer to section 5.3 for body condition scores of poultry.
- **Treatment:** Movement of the egg can be encouraged by adding vegetable oil on the feed and feeding oyster shells for extra calcium supplementation may assist. Lubricating a finger with oil and inserting the finger gently into the vent area to apply pressure to ease the egg out slowly is another treatment. Warming the vent area with warm towels or a salt bath may relax the muscles enough to release the egg.

8.9 REPORTABLE POULTRY DISEASES IN CANADA

Reportable diseases are classified as foreign animal disease that may be absent or not native in Canada but are a threat to human or animal health or to the Canadian economy. If these diseases are identified in your flock, it is important to report them immediately to the Canadian Food Inspection Agency (CFIA) or your veterinarian who will then contact the CFIA. The CFIA will then input measures or eradicate the threat to limit and prevent the spread of the disease. If there is an order for CFIA to eradicate the flock, they will compensate for your loss. There is a list of reportable poultry diseases in Canada below:

- Avian Influenza
- Exotic Newcastle Disease
- Fowl Typhoid (Salmonella Typhoid)
- Pullorum Disease (Salmonella pullorum)

Annually notifiable diseases are present in Canada but do not need to be reported immediately. If there is one of these diseases present it is advised to notify your veterinarian or CFIA to report the presence of the disease and follow advised measures. There is a list below of some of the annually notifiable diseases:

- Avian infectious bronchitis
- Avian leukosis
- Avian salmonellosis
- Avian spirochaetosis
- Avian tuberculosis
- Coccidiosis
- Infectious laryngotracheitis
- Marek's disease
- Avian mycoplasmosis

For further information on reportable poultry diseases in Canada please refer to the Canadian Food Inspection Agency website.

09 Euthanasia and Deadstock

9.1 EUTHANASIA PLANNING

In the world of livestock, they often use the who, what, when, why, and how method when it comes to euthanasia planning. Asking these five questions allows for a safe and ethical euthanasia. Electing euthanasia is not easy, but knowing it was the most practical option and that the suffering of the animal was stopped is important.

Who

- If you suspect an animal needs euthanasia then the first thing to do is contact your local veterinarian.
- if the animal is suffering and you know euthanasia is the only option, it is important to have a euthanasia plan in place. I.e., learn from your local veterinarian a safe and humane method to quickly end the suffering of the animal.

What

- When determined that euthanasia is necessary, you must then determine the most appropriate method for the age and size of your poultry
- For guidelines on appropriate methods of euthanasia, reference Appendix B in the Code of Practice for the Care and Handling of Hatching Eggs, Breeders, Chicken and Turkeys

When

- It is important when first obtaining your poultry to establish euthanasia guidelines to know at what point euthanizing is your most appropriate option.

- To make the call on whether to euthanize or not you must be able to recognize distress, pain, or suffering in one's poultry

Why

- To prevent prolonged pain and suffering when recovery is unlikely.

How

- When determined euthanasia is the best/only option, it is important you choose the right restraint and euthanasia method, see Appendix B in the *Code of Practice for the Care and Handling of Hatching Eggs, Breeders, Chicken and Turkeys*
- Keeping your euthanasia equipment clean and maintained allows for euthanasia to go more smoothly, which in turn makes for an easier experience for you and your birds.
- Consulting with your veterinarian on euthanasia methods and seeing if there are any courses offered on proper euthanasia methods in your area can be beneficial as well.

9.2 DEADSTOCK DISPOSAL

Removal of deadstock is important for health and disease management. The method of disposal can depend on local regulations and by-laws. Therefore, prior to obtaining your flock and disposal of deadstock check your local regulations and by-laws for deadstock disposal. Checking the NB Department of Agriculture, Aquaculture and Fisheries website under *Livestock* will see *Carcass Disposal Guidelines* for the Province. There are several types of disposal methods which are listed below:

- **Incineration:** This is the best method of disposal regarding the destruction of pathogens and infectious organisms. However, this may not be the most convenient or feasible option for small flock owners. Incineration may be offered at our Provincial Laboratory in Fredericton. Please phone 506-453-5412 to discuss this option and any fees.
- **Composting:** If the method of disposal is composting the designated area should be enclosed to prevent scavengers from obtaining the carcass. Poultry carcasses must have

enough organic material (e.g. sawdust) to be buried within the compost pile to ensure proper bacterial activity and heating can occur.

- **Burial:** Burial must be deep enough so that scavengers do not dig up the carcass. You need to check with the municipal/provincial regulations for burial and if there is a high-water table or you are located near a watershed then burial may not be an option. To assist with the burial process, carcasses should be covered with limestone pellets before being covered over with soil.

Should you have any questions or concerns regarding your flock, contact your veterinarian.