

# POULTRY GUIDE

*A resource for raising backyard poultry*



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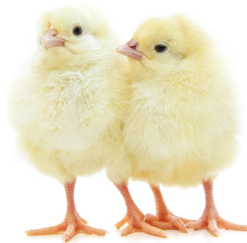
*Raising a small poultry flock can be a very enjoyable experience. The information and recommendations provided in this guide are based on accepted poultry production practices. However, individual results may vary as a result of differences in management environment, genetics, health, sanitation, and other factors. Therefore, Trouw Nutrition Canada Inc. and its brand HI-Pro Feeds, its affiliates or its distributors do not warrant or guarantee individual results and shall not be held liable for any gaps in the results.*



# Buying Birds

The number of birds you raise will depend primarily on the amount of space that you have available. You should estimate a mortality rate of 2 - 4% due to death or necessary culling (removing a bird from the flock). During the laying cycle, estimate egg production at about 1 egg/hen every 2 days for dual purpose breeds, or 3 eggs/hen every 4 days for egg-type birds (eg. Leghorns).

Species	Age	Space	
		Bird/m <sup>2</sup>	Ft <sup>2</sup> /Bird
Chickens	0 - 4 weeks	22.0	0.5
	4 - 8 weeks	11.8	1.0
	8 - 12 weeks	7.2	1.5
	12 - 20 weeks	5.4	2.0
Turkeys	0 - 8 weeks	8.6	1.3
	8 - 12 weeks	7.2	1.5
	18 weeks +	2.7	4.0
Ducks	0 - 3 weeks	9.8	1.1
	3 - 5 weeks	5.7	1.9
	5 weeks +	4.3	2.5



# Chickens

## Types

You can choose between non-selected or traditional breeds, and selected or modern breeds. Modern breeds have been selected based on meat production and carcass traits (meat-type) or on egg production (egg-type). Modern breeds, or strains, are often called by the name of the breeding company. Ross and Cobb are meat-type birds that will convert feed to meat very efficiently. However, they are very poor egg layers. Lohmann and Hy-Line are egg-type birds that will convert feed to eggs very efficiently, but have extremely poor carcass traits. If you want to purchase modern, selected breeds you will likely need to contact a commercial hatchery.

If you choose a traditional breed, you have the choice of single purpose or dual purpose breeds. Dual purpose breeds (Barred Plymouth Rock, Rhode Island Red, and New Hampshire) can be used for eggs and meat. The cockerel can be raised for meat and the pullets will lay a good quantity of brown eggs.

Most modern meat-type birds are based on the White Rock or Cornish breeds and either of these traditional breeds will produce good quantities of meat. These pullets can be used for brown egg production provided you don't allow them to exceed 2.5 kg (5.5 lb) in body weight at the time of first egg. Modern egg-type chickens are based on the White Leghorn because the White Leghorn is a very efficient egg producer. White Leghorns lay large, high quality, white eggs. For brown eggs, choose a coloured chicken such as the Rhode Island Red. There are also several strains of modern brown egg layers available through your commercial hatchery.

## Housing

When possible, the poultry house should be away from other livestock buildings. Windows should face the east to prevent over-heating on warm sunny days. The house should be well insulated, free from drafts, and have a solid floor of either cement or wood.

Before the birds arrive, clean out the old litter and droppings and wash the inside of the house. When the walls and ceiling are dry, wipe or spray them with a good disinfectant. Feeders and waterers should also be washed and disinfected prior to use. Proper disinfection is particularly important if disease was a problem with the previous flock.



## Brooder

Day old chicks should be started in a warm, dry, and draft-free area. Place a brooder guard, such as a cardboard ring, around the heat source to confine the birds to the heat, water and feed. The brooder diameter should start at 60 - 90 cm (2 - 3 ft) larger than the heat source and should increase as the birds grow. At 7 - 10 days, remove the brooder ring and place the feeders and waterers around the house.



## Water

Fill the waterers several hours before the birds arrive so that the water is at room temperature. Put in extra water for the first few days. As each bird is placed in the brooder, dip its beak in the water so they get a drink and learn to find water. Provide fresh water daily.

## Temperature

The heat source should be at least 40 cm (16 in) above the litter to minimize fire hazard. More than one heat lamp is recommended in case a bulb burns out. Set the temperature at 32 - 35°C (90 - 95°F) for day old chicks, and decrease the temperature 3°C (5°F) each week thereafter. Check the temperature at chick level and observe the chicks' comfort level. If the chicks pant or press against the edges of the brooder, they are too hot; if they huddle together in a pile, they are too cold. Sharp chirping indicates discomfort. Adjust the heat source as necessary.

## Lighting

Chicks should have continuous light for the first 3 - 7 days to ensure they find the feed and water. After 1 week, they should have 12 hours of continuous light per day. (see specific lighting requirements for each type of poultry). Use 60 watt incandescent bulbs for the first 2 weeks then use 20 watt bulbs. Reduced light intensity will help reduce cannibalism.

If the chicken coop has electricity, light bulbs will help to keep it warm in winter and prevent drinking water from freezing. Lighting can also be used to stimulate laying during the winter. Giving the chickens light during the evening or early morning to simulate 14 - 16 hours of sunlight will increase winter production. Automatic timing devices to turn the lights on and off are available and recommended.

Broiler chicks should be provided light 23 - 24 hours a day for the first 3 days, with an intensity of approximately 20 lux. For the next 3 weeks, the light can be reduced to 8 - 14 hours/day and the intensity can be reduced to about 10 lux. This will slow early growth and help to prevent leg problems and heart complications later. At 3 weeks of age, you may want to return to 24 hours of light to encourage maximum growth or stay on the lighting program allowing periods of darkness.

Laying hens normally lay between early spring and mid-fall. Increasing day length (January - June) stimulates egg production; decreasing day length (July - December) inhibits egg production. Start chicks at 24 hours of light for 3 - 7 days. After the chicks have found feed and water, reduce the light to 16 hours. Up to 3 weeks of age, gradually decrease the light to 10 hours per day. Maintain 10 hours of light until the pullets are large enough to start to lay eggs (usually 18 - 20 weeks), and then begin to increase the day length. Increase the light 30 minutes each week until there is 16 hours of light.



## Feed

Place feed in the feeders and on low flat trays that are easy for the chicks to reach (egg cartons work well) or use commercial chick paper if available. Remove the trays once the birds have learned to eat from the feeders. Commercial chick paper will disintegrate and disappear as the birds age. Chicks will require 2 - 3 cm (1 in) of feeder space per bird.

Feed should be available at all times. Chicks should be started on a high protein ration. Poultry starter should be fed free choice up to 3 weeks of age.

Broiler rations should be fed free choice. Feeding a complete ration will produce healthier birds that are less susceptible to disease. Birds fed whole grain diets only, may develop leg problems due to low vitamin and mineral levels.

In order to maximize egg production, laying hens should be fed laying rations free choice. Laying pellets fed alone provide a complete diet with a sufficient amount of calcium. Laying hens need calcium to keep the shells thick. If laying pellets are combined with other whole grains, the levels of vitamins and minerals, including calcium, will be diluted. Oyster shell can be offered free choice or sprinkled over the feed for additional calcium.

## Hen/Chick Scratch

Feeding various whole grains with cracked corn is called hen/chick scratch. It is not an adequately balanced diet because it contains no vitamins or minerals. Birds may develop nutritional deficiencies if scratch is fed alone. Scratch can be used as a treat, but should not contribute to more than 5% of the total diet. It can also be used to keep the litter loose.

## Litter

Chicks should be raised on a clean, dry, absorbent material such as wood shavings or sawdust. Straw and shredded paper will also work but are more

difficult to maintain. Leg problems may develop if the birds are placed on slippery material such as paper. The litter should be 7 - 10 cm (3 - 4 in) deep in the brooding area. Stir the litter daily to keep it dry; replace the litter if it gets wet or cakes. Wet litter is a major source of disease.

## Marketing

Meat birds raised in confinement are usually processed at 7 - 9 weeks of age. Roasters can be produced by waiting until the birds are older (14 - 16 weeks), but the amount of feed per pound of gain increases as the birds get heavier. Farm flock birds that run loose may not be heavy enough until 24 weeks of age.

## Nesting Boxes for Laying Hens

Provide one nest box 30 x 30 x 30 cm (12"x 12"x 12") for every four hens. A temperature range between 7 - 27°C (45 - 80°F) is acceptable. In extremely cold weather, supplemental heat may be needed.

# Laying Hen Tips

## When will my chickens lay?

Pullets hatched very early in the spring may start laying in the fall, but won't reach peak production until the following spring. Hens are at their peak production from 1 - 2 years of age. A 4 - 5 year old chicken is "old".

## Why are my hens not laying?

Hens may stop laying for various reasons. A change in location, feed, or severe temperature fluctuations may cause temporary changes to the laying pattern. If the chickens are receiving fortified laying pellets as their sole ration, their nutritional requirements for egg production will be met. However, if other grains are also being fed, the hens may be deficient in protein which will reduce egg production. Other causes may be an inadequate water supply, parasites, or disease.



## Moulting

Moulting is the shedding and re-growth of feathers. It occurs once a year, usually in the autumn, and lasts 6 - 8 weeks. Egg production generally stops during a moult. Major disturbances such as very cold weather, decreasing

day length, lack of feed or water can cause a moult. It occurs naturally in hens after 1 year of laying.

### **How do I tell if a hen is laying?**

Laying hens have large, bright red combs; soft, deep abdomens; large moist vents; and a 3 - 4 finger space between the pubic bones (just in front of the vent on the underside of the chicken are two pointed pubic bones). The beaks and shanks will be light in colour. Non-layers have shrunken, dull combs and about 1 - 2 finger space between the pubic bones. The beaks and shanks will be yellow-coloured.

## **Turkeys**

### **Types**

The choice of turkeys is limited between a White (modern) or a Bronze (traditional) strain. Both toms and hens of either strain are suitable for meat production. The White turkeys are faster growing and the carcass is easier to clean than the dark-feathered Bronze strains.

### **Brooding**

Turkey poults should be brooded similar to baby chicks, although they are more fragile and require extra attention during the first few weeks. Set the brooder temperature at 35 - 37°C (95 - 99°F) before the poults arrive. Have the feed and water already in place. Vitamins may be added to the water for the first few days to provide an additional boost.





## Feed and Water

Turkeys should be fed free choice in a clean, easily accessible feeder. Feed wastage will occur if the pans are too full. Sprinkle grit on top of the feed to aid digestion.

Turkey poults grow very rapidly, therefore they need an accurately balanced ration to meet their high nutrient requirements.

Clean, fresh water must be available at all times.

## Lighting

Start the poults on 24 hours of light, but reduce it to 16 hours after 5 - 7 days.

## Marketing

Broiler turkeys are marketed at 12 - 14 weeks (5 kg or 11 lbs market weight); heavy hens at 16 - 18 weeks (7 kg or 16 lbs market weight); heavy toms at 19 - 24 weeks (12 kg or 26 lbs market weight).

# Ducks and Geese

## Types of Ducks

Popular egg-laying breeds are the Khaki Campbell and the Indian Runner. These small, active, non-broody ducks can produce large quantities of eggs. However, they tend to be of nervous temperament compared to the meat breeds. Meat breeds such as the Peking, Muscovy, or Rouen have been selected for rapid growth, mature body size, hardiness, and ease of handling. The Peking and Muscovy ducks have white feathers, which are better for down production and make for a cleaner carcass. Mature drakes weigh 4.5 - 5.1 kg (10 - 11 lbs) and mature females weigh 3.6 - 4.0 kg (8 - 9 lbs).

## Types of Geese

Breeds for meat include the Toulouse, Embden, and African. These geese have been selected for good livability, rapid growth, and coats of white or near-white feathers. Mature ganders reach 12 - 14 kg (26 - 30 lbs) and mature geese weigh 9 - 12 kg (20 - 26 lbs).

## Housing

Geese are commonly raised outside with minimal shelter, or indoors with access to outside. If full-grown geese are to be kept inside for a period of time, provide a minimum of 0.7 bird/m<sup>2</sup> (15 ft<sup>2</sup>/bird). This will keep the pen clean and will help to prevent fighting. For overnight housing, allow about 1.1 bird/m<sup>2</sup> (10 ft<sup>2</sup>/bird).



## Brooding

While ducks and geese are harder than chicks, brooding is still the most critical stage. The brooder should be 38°C (100°F) for the first 4 days and then gradually reduced to 30°C (86°F) by the 3rd week.

## Feed

Ducks should be fed a duck ration only because of their very high niacin requirement. Ducks will graze grass, but they cannot utilize the nutrients as well as geese. Laying strains can lay over 300 eggs/duck/year. If ducks are kept for breeding, feed should be restricted to maintain body condition. In addition to regular feeders, provide extra feed on egg cartons for the first few days.

Geese are excellent foragers and can be put on pasture at 3 - 4 weeks of age (confinement at night and during rainy cold weather is still recommended). Feeding birds in the evening will encourage grazing during the day.

## Water

Fill the waterers the day before the birds arrive. Waterers must be large enough for birds to submerge the tips of their bills but not so large that they can get in and swim. Ducks and geese will try to swim in their waterers, making the area around the waterers very wet and dirty. Placing the waterers on screened platforms will help to keep the litter drier. It is best to move the waterers outside when the birds are old enough.

## Lighting

Ducks and geese should be brooded with continuous light for the first 3 weeks.

## Marketing

Ducks can be marketed at 10 weeks of age; geese take a little bit longer, and can be marketed at 16 - 20 weeks of age.

# Game Birds

## Rearing and Brooding

Game birds are typically raised for meat and sport. Rearing game birds requires skilled management because the birds are semi-wild. All types of game birds require intensive rearing up to 8 weeks of age. They are very sensitive to chilling and require careful temperature and lighting control.

Quail and pheasants should be brooded at 40°C (104°F) for the first week, and 35°C (95°F) for the second week. They need 24 hours of light for the starter and grower periods. The light intensity must be controlled because bright lighting may result in cannibalism. Low lighting may result in high mortality or “starve-outs” due to the birds not finding feed and water.

Guinea fowl are very flighty and are therefore brooded with very low light intensity. Guinea Fowl are brooded at 40°C (104°F) for the first 3 weeks. At 4 weeks, the temperature can be lowered to 38°C (100°F) and at 5 weeks to 35°C (95°F).

# Flock Health

## Vaccination

Chicks are very susceptible to a disease called coccidiosis which causes severe digestive disorders. Mortality can approach 90% if the chicks are not fed a medicated feed, or are not vaccinated to help prevent coccidiosis at the hatchery. Check with the hatchery to find out what vaccinations were given.

For a coccidiosis vaccination to adequately provide immunity to the growing birds, adequate spray techniques at the hatchery and careful management of the growing birds is required to help develop immunity.

Providing medicated feed (medicated for coccidiosis control) to coccidiosis vaccinated chicks will disrupt the vaccination process. If vaccinated birds are given medicated feed to control coccidiosis, continue feeding until birds have reached an age where immunity is likely to have developed (typically more than 6 weeks of age).

Ducks and geese should not be fed any medicated feeds.



# Disease and Other Problems

Disease can be caused by living organisms (bacteria, viruses, fungi, parasites), nutrition, and stress. If you notice the early warning signs of a disease, you can prevent significant mortality losses.

<b>Disease</b>	<b>Symptoms</b>
Ascites (water belly)	Affected birds will be lethargic, and have labored breathing, accumulation of fluids in the body cavity, often fatal
Blackhead	Contracted from chickens, wild birds and/or earthworms, decreased feed intake, watery/yellowish feces, high mortality in poults
Breast Blisters	Irritations of the keel bone, blisters on the breast at the keel
Coccidiosis	Can be a severe problem in young birds, causes blood in feces, high mortality
Flips	Sudden death syndrome, affected chickens are often found dead on their back
Leg Problems	Lameness, limping, visible swelling at joints
Mites and Lice	Causes great irritation to birds; anemia due to blood loss, mites are brownish/red and the size of a pin head, lice are 3 mm long and skin colored, can be seen around the vent or under wings
Marek's	A virus causing high mortality
Pasting Up	Feces stick to vent area preventing further defecation, worms or disease may be the cause if incidence is high, heat or cold stress may cause pasting up
Respiratory Problems	Gasping, wheezing, nasal discharge, and coughing, caused by virus, bacteria or fungi
Worms	White, round worms in feces, lowers productivity, inactive with ruffled feathers and drooping wings

nal deficiencies, toxic substances, or harsh environmental conditions. By recognizing

<b>Birds Affected</b>	<b>What do I do?</b>
Fast growing broilers	Reduce birds growth rate by reducing day length, ensure good air quality
Turkeys	Avoid problem by not allowing turkeys contact with other birds, medication is available
Meat type birds	Provide clean, dry litter at least 10 cm (4 inches) deep
Chicks	Feed medicated starter and grower feed, provide dry litter
Fast growing chickens	Reduce birds growth rate by reducing day length
Meat type birds	Reduce birds growth rate by reducing day length, cull birds
Chickens	Ensure the house is properly sanitized prior to birds entering, minimize contact with older birds, mite and lice controlling dusts or chemicals are available
Young chickens	Minimize contact with older birds, have chicks vaccinated at hatchery
Chicks/Poults	Pick off dried feces, minimize worm and disease threat
All	Ensure good flock management to minimize disease threat, water medication available
All	Ensure good sanitation practices, water medication is available

## **Biosecurity**

Biosecurity is a term used to describe controls you have in place to limit the potential spread of disease-causing organisms to other farms or flocks. Maintaining the biosecurity of your poultry flock is an important responsibility. The government and the poultry industry have worked together to create biosecurity guides available to those within the poultry industry, which are updated as new information and standards are developed.

Disease symptoms to watch for include coughing, sneezing, watery eyes, droopiness, abnormal droppings and sudden drops in feed consumption or egg production. Isolate sick birds, and have your local veterinarian or poultry disease diagnostic laboratory diagnose the problem immediately to start treatment. Very sick birds should be humanely killed and buried or burned in an incinerator depending on local regulations. If allowed, disposal pits should be located at least 46 m (150 ft) from wells or springs.

To help prevent the spread of disease, do not mix birds of various ages or species. Young birds are susceptible to diseases carried by older birds. Turkeys and game birds are susceptible to some diseases carried by chickens. Disease can be controlled through cleaning and disinfection of facilities and equipment before new birds are introduced. Proper sanitation will help to prevent the spread of disease from one flock to the next.

Wet and caked litter will incubate disease. Maintaining fresh, dry litter will help to minimize the spread of disease.

## **Blackhead**

Blackhead is a disease that turkeys contract from chickens or wild birds (occasionally chickens and quail will get it). It is rarely seen in housed flocks with no outside run. Symptoms include decreased appetite, watery and sulfur-coloured feces, and high mortality in young poults. If blackhead is a problem, providing medication for blackhead control is necessary and veterinary assistance is required. Medication is typically delivered through the water.

## **Cannibalism**

Cannibalism may occur in young birds if they are overcrowded or have too much light or heat in the brooder. In both young and older birds, nutritional deficiencies or inadequate waterer or feeder space may also be contributing factors. With laying birds, having a ratio of too many males to females can be a factor (1:8 is a good ratio). An injury of any sort may also start cannibalism. If a bird is injured, isolate it until the wound is completely healed.

## **Crooked Legs**

Crooked legs can be a problem with meat-type birds. Leg problems are generally caused by a rapid rate of growth. The heavier the birds get, the greater the incidence. Following feed and management recommendations will help to minimize these problems. Maintaining good litter conditions, proper ventilation and avoiding overcrowding will also help.

## **Mites and Lice**

Mites and lice are a serious problem for chickens. They crawl over the chicken's body, biting and sucking blood. Mites and lice cause great irritation to the bird, blood loss, weight loss, lowered egg production, and generally lower the birds resistance to disease. Mites can be seen by looking closely on the underside of a chicken, especially around the vent. They are brownish-red in colour and smaller than the size of a pin head.

Some mites spend the day on the perches and in crevices in the building, crawling onto the chickens at night when they go to roost. Others live continuously on the birds. If things are crawling around in the litter or nesting boxes, they are probably mites.

Lice are larger than mites. They spend their entire lives on the chicken's body. Their eggs stick to the feathers in clumps. There are a number of treatments available for both lice and mites.

## **Pasting Up**

Chicks sometimes develop a condition called pasting up. This is when the droppings stick to the vent area. If there is a buildup of hard feces, the chick will not be able to eliminate its waste. The dried droppings must be picked off. If pasting up affects a large percentage of the chicks, worms or a disease may be the cause. Make sure that the housing is clean and the feed is appropriate for the age of bird.

## **Worms**

Several types of worms may infest the intestinal tract of poultry. Birds with worms won't lay well, may appear weak, have runny droppings, and will lose weight (or not gain weight rapidly if young).

Good sanitation between flocks, correct litter management, and no contact with wild birds are the best controls. When a worm problem does develop the chickens are more susceptible to disease due to lowered resistance. If necessary, the birds can be treated through the water. Be sure to rule out any disease problem before treating for worms.

For more information on the Hi-Pro Feeds poultry feeding program, contact your local feed dealer.



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