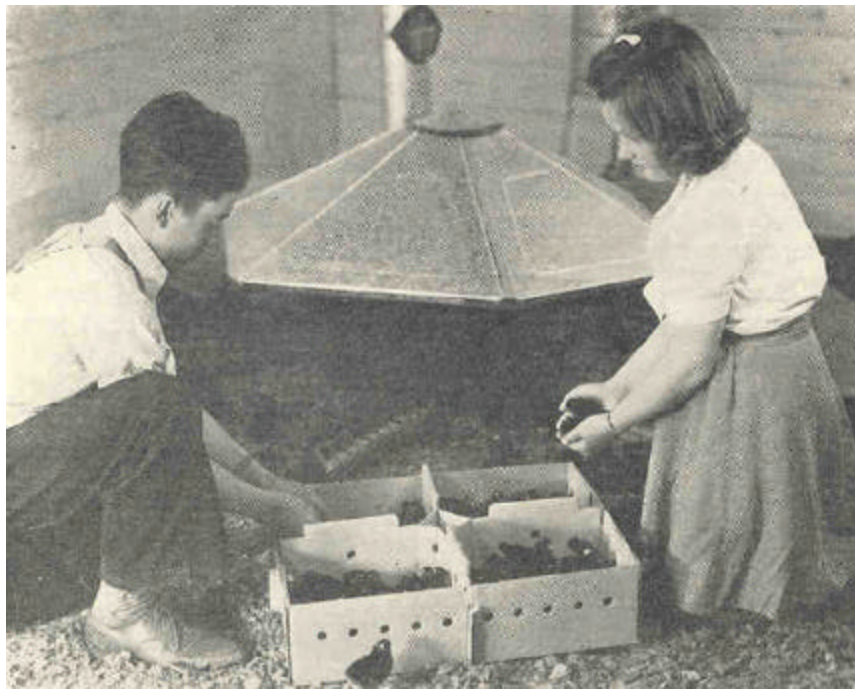


MANITOBA DEPARTMENT OF AGRICULTURE AND IMMIGRATION
WINNIPEG, MANITOBA

Growing Healthy Chicks in Manitoba



Chicks Are Placed in a Well Prepared Brooder House on Arrival

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By the authority of Hon. F.C. Bell, Minister of Agriculture and Immigration
Printed by C. E. Leech, King's Printer for Manitoba

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The Artificial Brooding of Chicks

Chicks are brooded under a wide variety of conditions in Manitoba. Successful brooding is preceded by a thorough cleansing and preparation of the brooder house and equipment well in advance of the arrival of the chicks. This careful preparation for the chicks followed by efficient feeding and management throughout the season, assures a flock of strong healthy vigorous birds.

Advance Preparations

1. Prior to freeze-up, clean the brooder house and all brooder equipment. Sweep down the ceiling and walls. Remove the dirt from the floor. Wash the floor with a lye solution made up of one pound of lye to five gallons of water. If a coal tar disinfectant is used, mix and apply it according to the manufacturer's instructions. Brooder equipment, such as feeders and waterers, should be carefully washed, and disinfected before storing for future use.

2. Place your order for chicks six weeks to two months before they are required. Do not order more than your brooder house will accommodate. Each chick requires one-half square foot of floor space in the brooder house.

3. At least a month before the chicks arrive the brooder stove and equipment should be assembled and operated for a few days. If wafers, dampers, hovers or other parts are missing, or out of order, they should be repaired and replaced well in advance of the chick delivery date.

4. Two days or more before the chicks arrive everything should be in readiness: the brooder stove operating; litter on the floor; feed hoppers in place and filled with feed. A thermometer at the edge of the hover is required for proper temperature adjustment. If temperatures are too high, too low, or fluctuating, adjust the waffer and damper controls until the heat remains steady at 95°F. Make sure the ventilation system is operating. Eliminate direct draughts.

5. Provide sufficient feed hoppers and water founts to prevent over-crowding. During the first six weeks each chick should be provided with one inch of feeding space at the hopper and one-half inch at the water founts.

6. Have sufficient chick starter on hand to last a normal brooding period of six weeks. One hundred chicks will require 200 pounds of starter during this time.

The Brooder House

A brooder house need not be elaborate or expensive. It must be sufficiently weather-proofed to meet the most severe conditions that are likely to prevail while the chicks are being brooded. In Manitoba both portable and permanent brooder houses are used. Insulation of the walls and ceiling is desirable. It retards heat loss and is

conducive to maintaining steady brooder house temperatures with a minimum of fuel consumption. Planer shavings packed between the studs and between the ceiling joists is a popular and satisfactory means of insulating brooder houses.

Coal, wood, oil, electricity and gas provide satisfactory sources of heat for brooding chicks. Electricity and gas are more commonly used for late season brooding. When either of these is used in cold weather supplementary heat for the brooder house is often necessary.

Although portable brooder houses are still in general use in this province, the permanent brooder house with a concrete floor is gaining in popularity. The permanent brooder house, supplemented with range shelters for summer rearing, is an advantage in that it can brood several lots of chicks each season. Breakage of sills and floor joists due to moving are also eliminated. Because permanent brooder houses are usually larger than the portable type they afford better facilities for maintaining the chicks indoors in the event of an unseasonably cold spell of weather. Permanent brooder houses may also be used in the off season to house layers.

Temperature

Chicks like to feed and play in a fairly cool place and then run to the stove to be warmed. Do not keep the brooder room too hot. The thermometer on the brooder house wall, at eye level, should not exceed 72°F. during the entire brooding period. A range of temperature between the edge of the hover and the brooder house wall promotes smooth feathering and does much toward eliminating many common brooder problems, especially feather picking and cannibalism. A temperature of 95°F. two inches above the floor at the edge of the hover is desirable during the first week. Reduce this temperature 5°F. each succeeding week until no supplementary heat is required.

The action of the chicks themselves is a reliable guide to correct brooding temperatures. Observe the chicks at night. When the temperature is ideal they will form a "sleeping ring" just forward of the outside edge of the hover.

Ventilation

Ventilation must be provided to insure a plentiful supply of oxygen and the removal of carbon dioxide. Chicks need fresh air. Control ventilation by the adjustment of windows or ventilators.

Humidity

Extra moisture is often required in the brooder house during the first three weeks. This may be provided by placing a pan of water on the stove or by hanging moistened sacks on the wall of the pen. Lack of moisture in the air may cause chicks to grow slowly, lose their appetites, their shanks to shrivel and their feathers to become brittle. This later condition may cause "bare backs." After the third week of brooding, the chicks usually produce enough moisture through their droppings and from their lungs to supply adequate moisture in the air. During the latter half of the

brooding period it is important that the litter does not become damp. Wet or damp litter favors the development of disease organisms, particularly coccidiosis.

Litter

Wheat straw is most commonly used to cover the brooder house floor. Peat moss and alfalfa hay also make satisfactory litter. The use of planer shavings, sawdust, fine sand or "blow dirt" is not recommended. Damp or mouldy litter should never be used.

Precautions must be taken during the first few days of brooding to prevent the chicks from eating the litter. A satisfactory preventative measure is to place several layers of newspaper over the litter area near the heater. One layer of newspaper should be removed daily. This keeps the hover area clean. Within three or four days all newspapers should be removed and the chicks allowed to run on the regular litter.

Roosts

At three weeks of age chicks should be encouraged to roost. Laths placed across bricks on edge are suitable for the first week, to be replaced later by a regular gently sloping roosting rack. Early roosting facilities overcomes crowding and smothering, and serves to train the growing birds to roost. Two by fours on edge, spaced twelve inches apart, make satisfactory roosts. The top edges should be bevelled.

Feeders and Fountains

Clean cupped-type egg case flats, pie plates or shallow pans make ideal feeders for the important first few days of brooding. Place these along with the water founts around the edge of the hover. "Reel" type feeders with two inch sides, well filled with "starter mash," should also be placed in the same area to accustom and train the chicks to eat from regular feeders.

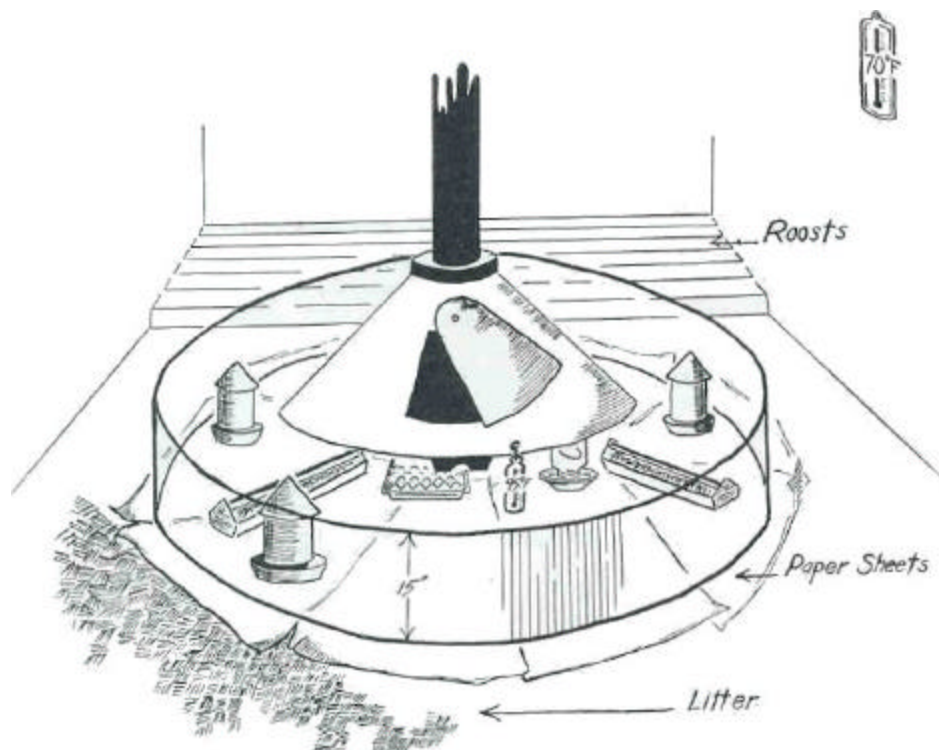
Provide at least two one-quart jars per one hundred chicks as founts for the first week. Invert the jars in a saucer and place a stick or flat stone about the thickness of a pencil under one edge of the jar so that the water will float out to the desired level in the saucer. Use tepid water. After one week, each one hundred chicks should be supplied with a one gallon sized drinking fountain. As the chicks become older gradually move the feeders and fountains away from the hover. Never be afraid of providing too many feeders and fountains. Extra feeders and fountains give the timid chicks greater opportunity to eat and drink unmolested.

Managing the Chicks

Feed the chicks as soon as they arrive. Dip the beak of each chick into lukewarm water. If electricity is available place a 7½ watt light bulb under the edge of each hover and keep it burning all night throughout the brooding period.

First Three Days: By means of a chick guard keep the chicks within two or three feet of the edge of the hover. A "chick guard" is a ring of cardboard or tin about fifteen inches high which completely encircles the hover at a distance of twenty-four to thirty-six inches. This not only keeps the chicks close to the heat but also tends to eliminate floor draughts. The size of the guard may be gradually increased; until the fourth or fifth day when it can be removed.

Fourth, Fifth and Sixth Days: Enlarge the chick guard to allow the chicks to go five or six feet away from the heat. Arrange the "reel feeders" around the brooder stoves like spokes in a wheel. Place the water founts midway between the "chick guard" and the edge of the hover. Toward the end of this period completely remove the chick guard and allow the chicks free access to the brooder room. Block off the corners by means of a sloping triangle of cardboard or place a board across each corner so the chicks will not huddle in these spots and smother.



Second Week: Gradually move the water fountains and feed hopper toward the stands made of two by fours on edge covered with inch square wire mesh. By the end of the second week these utensils should be in place on top of the wire mesh covered stands. To minimize feed wastage gradually reduce the amount of starter in the hoppers until they are not more than one-half to two-thirds full. Never allow them to become completely empty. The brooder temperature should be lowered gradually to 85°F.

Third to Sixth Week: Start feeding a small amount of cracked wheat on top of the chick starter once daily. Offer chick size insoluble grit in separate hoppers. During the fourth and fifth weeks a little whole wheat and plump oats may be given. Feed this on top of the starter at first and by the sixth week whole grain may be offered in separate hoppers. It is important that the chicks continue to have free access to starter

mash. A little finely cut fresh succulent green feed, supplied daily, makes an excellent and nutritious supplement to the ration. Long uncut blades of grass, dandelion leaves or other such greens tend to mat together in the crop and should not be fed unless chopped.

Seventh Week: By this time the cockerels can be distinguished from the pullets. Separate the sexes and move the chicks to range, keeping the pullets on one-half of the range and the cockerels on the other: If caponizing of cockerels is to be done this is the time to have the operation performed. Allow the capons and pullets to range together.

Feeding Chicks

To assure chicks of a good start in life provide them with a continuous supply of a dependable commercial chick starter. These dry mash starters are specially prepared to meet the exacting feed requirements of totally confined chicks. No additional food need to be given except water in clean fountains. Home mixed starting mashes can be prepared if all ingredients are secured and carefully blended and mixed together in the proper proportions. The following starter has given satisfactory results at the University Poultry Plant:

Ground wheat	25 lbs.	Limestone powder	1 lb.
Ground oats	25 lbs.	Iodized salt	1/2 lb.
Ground barley	25 lbs.	Fish oil (200D-1500A) ...	1/5 lb.
Fish meal (72%)	3 lbs.	Manganese Sulphate	1/5 ounce
Meat meal (55%)	8 lbs.	Choline chloride	25 grams
Skim milk powder	3 lbs.	Riboflavin premix (No. 54).	1 gram
Sunflower or mustard meal	6 lbs.		
Alfalfa meal	4 lbs.	Total	<u>100 lbs.</u>

Unthrifty Chicks

There are always a few chicks in every flock that do not grow and develop as rapidly as the rest. From the time the chicks are placed under the hover and thereafter, watch and remove the unthrifty, small, weak, or lame birds. They are the ones with low resistance and most likely to harbor disease organisms. To keep such birds alive endangers the health of the entire flock: The most frequent cause of unthrifty chicks is over-crowding, which often results in high mortality. Besides being the direct cause of death among chicks, over-crowding leads to many vices such as toe picking, feather picking and cannibalism.

More Than One Brood of Chicks

The practice of brooding together, chicks of different ages has not proven to be satisfactory. The older chicks usually survive at the expense of the younger ones. Due to their longer familiarity with the premises, greater strength and development the older chicks dominate the feeders, waterers, and obtain the choice roosting locations. Mortality and unthriftiness among chicks of different ages brooder together is always high.

Approved flock owners, desirous of having a few R.O.P. males chicks to head up their fall breeding program, may have greater success in rearing them if they secure

these few special chicks one or two days in advance of their other chicks. This is the only exception to the general rule of never brooding together more than one age of birds.

It is practical and often desirable to have more than one brood of chicks annually. Each brood should be treated as a separate unit without intermingling between previously brooded lots. Clean and disinfect the house and equipment between broods.

Do's and Don'ts in Brooding Chicks

- Do**
- Clean, scrape, scrub and disinfect the brooder house and equipment before the chicks arrive.
 - Purchase day-old chicks. Place your order months in advance.
 - Feed and water chicks as soon as they arrive.
 - Feed a commercial chick starter for the first six weeks.
 - Keep the litter dry at all times.
 - Allow one-half square foot per chick in the brooder house
 - Maintain proper temperature at the hover and a much lower temperature in the brooder room.
 - Provide fresh air but avoid draughts.
 - Dispose of unthrifty chicks. Burn the carcasses.
 - Take every precaution against fire.
- Don't**
- Brood more than 250 to 300 chicks under one brooder stove.
 - Have less than one inch of feeder space per chick.
 - Neglect to clean the waterers frequently.
 - Allow the feed hoppers to become empty.
 - Let chicks out on soil contaminated by older birds.
 - Encourage visitors to view your chicks in the brooder house.
 - Neglect to start chicks roosting at an early age.
 - Brood together chicks at different ages.
 - Overcrowd.
-

Range Rearing of Chicks

Range rearing extends from the close of the brooding period until the flock is housed in the fall. Healthy vigorous birds, ready for a winter of heavy laying cannot be produced if, during this period of growth, they are inadequately or improperly fed, poorly housed and constantly exposed to harmful disease organisms. A successful range rearing program must be based on providing good practical conditions of feeding, sanitation, housing and management.

Locating the Range

The poultry range should be so located that the growing birds cannot find their way into the barnyard or onto land frequented by adult birds. It must be close enough to the farm home to encourage frequent visits by the flock owner and to discourage visits from predatory animals. Because certain disease organisms thrive in the presence of moisture it is important that the range be well drained. A gentle sloping piece of light land, exposed to the sun and the drying action of the wind, makes a desirable location.

Crops for Range

The most economical and nutritious food for growing chicks is fresh, succulent, tender green pasture. There are numerous crops which provide good poultry pasture. Among them are alfalfa, brome grass, fall rye, rape, oats, millet or a mixture of two or more of these crops.

The following rates of seeding are suggested for poultry pastures (the amounts indicated are sufficient to seed one acre):

1. Alfalfa	8 lbs.	4. Fall rye, oat mixture (seed in the spring)	
2. Alfalfa brome mixture		Fall rye	½ bus.
Alfalfa	10 lbs.	Oats	2 bus.
Brome	5 lbs.		
3. Fall rye	4 bus.	5. Oat, barley, millet mixture	
(seed in the fall)		Oats	1½ bus.
		Barley	1½ bus.
		Millet	5 lbs.

A well cared for poultry range will reduce the amount of purchased feed required by as much as ten to twenty percent. The range crop must be kept green and leafy by frequent mowing. This encourages the formation of a strong durable sod that keeps the birds off the ground. Alfalfa or the alfalfa-brome mixture, when established a year in advance of the time it will be pastured, is the most satisfactory range crop.

Ladino clover, highly recommended in eastern Canada and the United States as a poultry pasture, is subject to heavy winter killing under Manitoba conditions.

Rations on Range

Green feed alone will not support the normal growth of chicks on range. Whole grain and growing mash are required to make up the nutrients deficient in green feed.

Feeding Whole Grain

A mixture of available farm grains fed free choice in hoppers or troughs is a satisfactory way of feeding grain on range. Provide twenty lineal feet of feeder space per hundred birds.

Growing Mash

Birds on a continuous supply of lush green pasture thrive on a simple growing mash made up chiefly from farm produced feeds as follows:

Ground wheat	100 lbs.	Iodized salt	4 lbs.
Ground oats	100 lbs.		
Ground barley	100 lbs.		
Meat meal	50 lbs.	Total	<hr/> 354 lbs.

Limestone or oyster shells and insoluble grit (gravel) should be fed in separate hoppers.

If the pasture is dried up, mature or lacking, a more complete mash than the one above is necessary. This may be provided by adding a commercial concentrate to the ground farm grains in proportion as recommended by the manufacturer. For those desiring to mix their own growing mash the following formula is suggested for birds on limited range:

Ground wheat	100 lbs.	Fine iodized salt	4 lbs.
Ground oats	100 lbs.	Fish oil	1 lb. (1 pint)
Ground barley	100 lbs.	Manganese sulphate ...	2 level
Meat meal (50%)	60 lbs.		teaspoonsfuls
Limestone powder	5 lbs.		
Alfalfa meal	30 lbs.	Total	<hr/> 400 lbs.

The feeding of this mash should be accompanied by scratch grain, grit, limestone or oyster shells.

Range Rotation

One acre of land should be provided for every 300 chicks brooded. To range chicks on the same piece of land year after year increases the hazard from soil-born disease organisms. On the heavier soil, as found in the Red River Valley, a three or four year rotation is advocated. On lighter sandy soils a two year rotation is satisfactory. During the years that the chicks are not pasturing a piece of land it may be seeded to another crop or summer-fallowed. Where alfalfa or brome are being used as semi-permanent pasture crop, normal cropping methods may be practised during the years the chicks are not pasturing the land.

Shade and Wind Protection

Growing stock develop more uniformly during the hot summer months if they are afforded some protection from the sun and wind. The planting of a few rows of dwarf sunflowers or corn, in strips about two drill widths wide, provides satisfactory shelter, under which the birds may rest with a feeling of security.

Early Maturing Pullets

Pullets starting to lay before their bodies are fully developed is one of the most frequent problems occurring in range reared birds. It may be controlled by allowing the mash hoppers to become empty for increasingly longer periods each day after the birds are four months of age. The pullets, under this system, forage more widely as their mash is restricted, consuming greater quantities of green feed and whole grain. It is essential that plenty of green pasture is available and that the birds are not crowded for space. In general, not more than 250 birds should be pastured per acre.

Housing on Range

Range shelters designed to accommodate from 100 to 150 birds, have largely replaced colony houses on range. These "A-shaped" shelters, with wire covered sides and ends, give maximum coolness to the birds on hot summer nights and provide adequate protection from storms. They are economical to construct and readily moved by team or tractor. By placing sacks over the wire mesh sufficient heat is retained in them for early rearing. Cockerels may be maintained in these sack covered range shelters in the fall until they are ready for fattening.



Range Shelters Give Adequate Protection to the Growing Flock.

Trouble on Range

A common source of disease is the manure pile, particularly one in which the carcasses of birds are thrown during the winter. It is just inviting trouble to allow growing stock access to them. Another source of infection is the adult flock. Many adult birds develop a resistance to poultry diseases and intestinal parasites (worms) but carry the infective agents in their bodies and are capable of passing them out in their droppings. Young birds lacking immunity may become infected by contact with the droppings. Certain organisms when passed in the droppings take refuge in the soil and there remain alive for a year or more. When picked up and ingested by young susceptible birds they may produce a new outbreak of disease.

Disease in young stock lowers vitality, impairs health and is often responsible for heavy mortality. Avoid such conditions by providing range birds with clean land to which old stock has not had access.

Range Procedure

First Day: Separate pullets and cockerels. Move pullets to one section of the range and cockerels to another. Put a fence between them. Place not more than 125 chicks in each 8 x 10 range shelter. Place feed and water in the range shelters or colony houses and leave the chicks contained for 24 to 36 hours. Inspect the birds in the evening to see that they are comfortable.

Second and Third Days: Fence a small yard in front of each shelter and allow chicks out for two hours at noon. If they are allowed out for a longer period the chicks have a tendency to eat an excess of green feed, which may cause impaction of the crop and gizzard.

Fourth Day: Bring feeders and waterers out of shelters and place in the enclosure. Feed growing mash and whole grain in hoppers. See that all chicks go inside at dusk.

Fifth Day: Remove the fence from in front of the shelters and move feeders 10 to 20 feet from entrance. See that all chicks are shut in at night. Provide insoluble grit and limestone or oyster shells, free choice, along with growing mash and grain.

Sixth and Seventh Days: Establish feeders and waterers on wired covered stands near shelters. Examine birds critically and remove any showing signs of weakness or ill health. Check feeders and waterers, fill when necessary.

Second Week and After: Move feeders and waterers on stands a little each day so birds will not kill out pasture in one spot.

Allow feeders to become empty for a short time each day. Provide fresh mash or pellets daily. Examine shelters frequently for presence of mites. [Note: The rest of the paragraph on treatment of mites has been removed from this reprint because the treatment is not consistent with modern food safety protocols.]

As pullets mature move them into laying quarters. To offset the lack of open range conditions give the newly housed pullets plenty of air, green feed, and gradually switch them from growing mash to laying mash.

Never range chickens and turkeys together on the same piece of land.