

# Practical Pastured Brooding

## A pastured poultry growers guide to optimum brooding success using a day range backyard brooder for "grass-starting" poultry.

Putting is to a good golf game what brooding is to a good poultry program. Since almost half of a golf game is spent putting, anyone aspiring to fame in that sport must make a significant investment of time, money and energy practicing putting. Since almost half of a pastured broiler's life is spent in the brooder, anyone aspiring to success in a broiler enterprise must make a significant investment of time, money and energy in their brooding apparatus and management. It is recommended that this investment be made in advance of the chicks arrival, however if you are like me, you may tend to over extend. A simple, easily built, inexpensive brooder would sure come in handy.

It is obvious to anyone handling day old chicks that, while fragile, they are surprisingly adapted to ranging in the free world from day one. All they need is access to a warm, dry comfort zone at will. This nature provides in the kindly mother hen. May we not also provide the same our motherless broods? Yes, we can accomplish this in the day range brooding equipment described here.

Development of early grazing skills is greatly enhanced by "grass-starting" the chicks. Chicks that are never exposed to the outdoors until 3 or 4 weeks of age take much longer to learn to graze and are much more stressed by the total change of environment. The day range brooders make the learning curve much easier for the chicks.

Let's equip ourselves first with understanding of the needs of day old broiler chicks and then investigate the most economical and beneficial means of meeting those needs. A good range brooder must be flexible enough to meet all the chicks needs during changing weather patterns. It must be easily serviced and adjusted. Hurriedly improvised brooders, ( Otherwise known as "panic-brooder-syndrome" - often accompanied by shouts of, "Hey, the chicks are here!", or, "Honey, you weren't expecting chicks today, were you?"), are often successful on a first attempt but contain great potential to generate failure in future ongoing operations. Such brooders often require tedious effort to maintain ideal brooding conditions rendering them susceptible to neglect, eventually generating high mortality. It really is strange how something so cute and darling as a box of baby chicks could create so much work in such a short time. Since the project recommended here is relatively inexpensive in time and resources it should be an attractive solution to "panic-brooder-syndrome". If you have ever had this disease the following brooder may be indicated for your condition.

What are the living requirements of day old poultry?

1. Well-bedded : New chicks need dry, absorbent bedding material to dehydrate their droppings. It should be easily stirred by their activity allowing the manure to "disappear". It should be convenient to add to, or replace. Planner shavings from cabinet shops work best if there is not much sanding dust. They stay fluffed and not compacted better than sawdust and are not as easily confused by the chick with feed. Newsprint is slick, contributing to leg deformities, and not easily replenished. Trouble spots are easily treated with fresh shavings to eliminate soiled bedding.

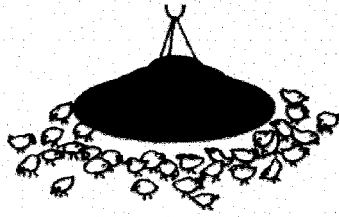
2. Well-ventilated/draft free : New chicks need fresh air. However, they do not like wind blowing on them . Current recommendations are a minimum of 6 changes of air/24 hrs. This is the most challenging aspect of designing a good brooder; how do you get ventilation without drafts? The best method is to have a vent high up in the shelter and no incoming air at bedding level. This is one of the variables that requires the most adjustment. It is also the fastest one to phase out. The amount of draft the chicks will tolerate increases rapidly with age. They can be hardened off quickly. This is one of the biggest drawbacks of brooding in a garage. It is hard to get ventilation without opening the garage door at ground level creating drafts. If you use windows, ventilation adjustments can be hampered by having to climb over 3 trash cans to close a window.

3. Predator proof : Rats can enter a hole 1 inch in diameter. They can easily carry off and stash away 100 chicks in a night. If rats can access your barn/carport/etc., they will be drawn to the sound of the peeping. Coons are acrobats when it comes to dinning on fresh chickens. Skunks and opossums are a little less cunning, and weasels are the masters of deceit. Do not use 1 inch poultry mesh to cover a brooder. Coons can pull the chicks legs through the hole and chew them off.

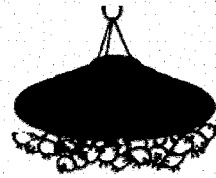
4. Dual environment : The easiest way to keep the chicks comfortable is to give them their choice of where they feel best. Create a warm place to sleep and a cool place to play. Put the feed and water in the cool zone. **The chicks do not need 90°F ambient air temp!** This can kill them. You just want it hot under the brooder lamp. The general environment of the brooder should be warm (75°F). Don't buy a thermometer, they will confuse you. It is not important to have the temp to the exact degree. Just watch the chicks. They will tell you if they are too cool by huddling under the heat lamp. If they are too hot they will get as far away from the heat as possible. Adjust to keep them in a comfortable ring around the heat lamp but not directly under it. You can harden the chicks off like green house plants by gradually reducing the heat and exposing them to cooler temperatures. Again just watch the birds. (See Graphic on next page)

Copyright Timothy Shell - PROVIDED BY Jericho Settlers Farm, COM

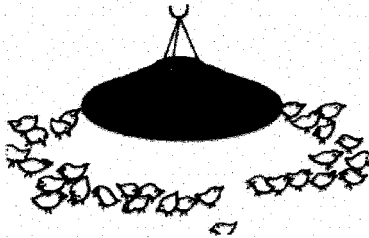
## 1 Distribution of Chicks Around Brooder Indicates Comfort



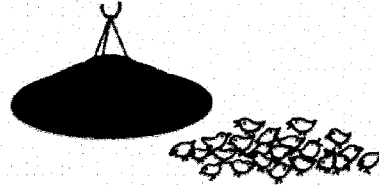
**OPTIMUM**  
Chicks are evenly distributed around brooder and emit contented cheeping sound.



**TOO COLD**  
Chicks huddle directly under brooder and emit loud chirping sound.



**TOO HOT**  
Chicks are drowsy and move away from heat source.



**DRAFTY**  
Chicks huddle in area near heat source but not evenly distributed around brooder.

5. Abundant natural daylight : The pituitary gland in the chicks head is the master gland of its body. It is stimulated by light directly through the skull. The chicks do best where they can get natural light. Your goal should be to harden them off and turn off the heat lamp overnight as soon as they can accept it. (Don't take a chance on letting them get too cold and pile up and smother.) This gets them adjusted to a regular day/night cycle and helps them normalize their metabolism.

6. Clean water : The chicks do best on clean water. If you wonder if it is clean enough just suggest to yourself that you take a drink. The degree of aversion you feel to drinking it is the degree it needs to be cleaned up. Keep it clean. The easiest way is to install nipple drinkers. They have no reservoir to collect dirt. They will not develop wet cake around the drinker if adjusted properly. In this brooder setup the chicks are served by a five gallon pail mounted outside the brooder for trouble free, bulk water servicing. No more one quart chick drinkers to clean and refill.

7. High Quality Feed with grit : Use feed with the Fertrell Poultry Nutri-Balancer. Start by putting a small mound of grit on a 5 Gal. bucket lid. Cover with feed. Allow the chicks to go through that while having access to a regular reel feeder. Once they have scratched all the grit off the bucket lid remove it. You do not want them to be able to stand in their feed. Buy a reel feeder. It has a revolving reel to keep the chicks from getting in the trough. It has a leg stand on each end that can be adjusted from 0 to about 2 inches of height. Start with the trough on the bedding and raise as the chicks grow. Add probiotics to your feed or water if you do not use the Fertrell nutrient supplement.

Following these guidelines with a degree of thoroughness should allow a grower to achieve near-zero mortality in the day range brooders described here.

## The Day Range Backyard Brooders

These brooders are lightweight, portable, bedded, predator-proof shelters with an opening on either side which can be opened or closed to adjust ventilation and allow access to a grass run in the day time. The top on both sides lifts up for easy caregiver access. Chicks can be allowed to run out in the warm sunlight as soon as conditions permit. Chicks are closed in at night. It is designed with the back yard user in mind and performs best in a well mown area near to the house. The volume of litter used is less since much of the droppings fall in the yard. One wheel barrow load of shavings is easily dumped in over the brooder side and will last 2 weeks. Door clearances of less than 1/2 inch exclude rats and all but the most determined of mice.

These plans provide information on how to construct three sizes of brooders. Use the photos, instructions and drawings to understand all the details. Not all information is repeated in each size where similarities exist. Drawings are not to scale in all aspects.

# 4' by 6' (nominal) Day Range Brooder

## CAPACITY :

Roughly 4 feet wide by 6 feet long the brooder will accommodate up to 150 chicks for 2 weeks, or 100 chicks for 4 weeks. The space is optimized by allowing the chicks access to the outdoors. If total confinement is to be used 100 chicks will outgrow the unit at 2 weeks. The high carrying capacity of this unit comes from using the outdoors for our brooder space. Chicks are not stressed by crowding when sleeping or shading since it is not against their will. This allows us to invest in protecting only in the space needed for the chicks habitual close sleeping/shading arrangements. For longer stays refresh bedding as needed.

## TIME TO CONSTRUCT :

With materials in hand one day is anticipated in the project. 4.5 hrs to cut out materials and 4.5 hrs to assemble with 1 hour to setup and install the peeps. Avg. time estimate = 10 hours.

## SUPPLIES : Lumber :

Frame : 2" x 4" x 8' - 2, 2" x 2" x 8' - 12

Siding and Roof : 7/16"x4'x8' OSB Sheeting (use optional T-111 for better appearance and longer life)

Runner : 2"x4"x8' Pressure Treated - 2

## HARDWARE :

Staples : 1/2", 1", 1.5" - 1/4 inch crown 16 or 18 gauge air staples

Screws : 3" decking screws - 1lb 1.5" decking screws - 1/2lb 1" decking screws - 1lb 1/4 hardware cloth - 12"x14'

20d nails - 2, #8 eye screws - 10, 4" metal "T" lid hinges - 6, 2" solid side door hinges - 8, 2" screen door hinges - 6, 2" door bolt latch - 4, 15 ft steel wire, 12ft. 1/2" black plastic water tubing, string, light wt chain

## TOOLS :

Chalk line or 60 inch straight edge, Cordless drill w/screw driver and assorted bits, Air Stapler - 1/4 inch crown Tin Snips, Claw Hammer, Circle Saw, Jig Saw, Speed Square

## EQUIPMENT :

Exterior 250V Dual Flood Lamp Fixture, 100 ft. Extension Cord

Nipple Drinker - 5' with 7 to 8 nipples, Tubing - 3/8od, 1/4id x 2', 5 gal. pail

Litter - 6 to 10 cu. ft planer shavings (a wheelbarrow load), Reel feeder 1 - 4ft

## YARD FENCE :

100 ft. x 3 ft. tall light weight plastic netting - 1 inch mesh, 36" tread in electric fence posts - 8

## COST ESTIMATE:

Supplies :

Lumber (OSB): @\$50 (For Pressure Treated T-111 add @\$80.00)

Hardware : @\$25

Equipment : @\$50

Yard Fence : @\$60

Total : @\$185

## LIFE EXPECTANCY :

Painted : 6 to 8 years , Unpainted : 3 to 5 years, Treated T-111 : 15 years

## CONSTRUCTION :

### CUT OUT :

Cut to length as indicated on Lumber Cutting Pattern

Mark and cut out OSB/T-111 parts as indicated on Pattern

Mark and cut out hardware cloth as indicated on Pattern

### ASSEMBLY :

-Screw 2 screen doors together with 3" decking screws and staple hardware cloth to frame with 1" staples

-Screw 4 OSB floor panels to runners with 1.5" decking screws, staple joint cover in place

-Assemble 2 end frames first w/ 3" screws

-Assemble with 72" side frame 2x2's and 2x4's, and attach to end frames, omit side frame verticals and peak frame and lid supports until later. Turn over and lay floor/runner assembly on top and screw to frame w/ 1.5" screws.

- Drill 4 - 3/4" holes in runners on either end for handle. Attach wire to holes with tubing covering for handle.

Return to upright position.

Copyright Timothy Shell

- Center 2 doors in side opening and install side vertical frame posts on either side allowing 1/4 clearance on each side. Lay doors aside.
- Attach peak vent frame verticals, on each side, with 4.5" block
- Attach 2 side and 2 end OSB panels with 1.5" staples and a screw near each corner for strength.
- Attach 4 angled frame members for top lid support flush with OSB, mark and trim supports for exact fit. Now install 44" peak vent cross members.
- Attach 2 screen doors with 3 - 2" hinges/each to base side 2x4.
- Attach 4 side OSB door panels with 2 hinges/each
- Attach hardware cloth to peak vent ends and sides with 1" staples
- Attach 2 top doors with 3 - 4" "T" hinges/each
- Attach top rail bucket hanger to hang out from one side, add extension hangers to raise bucket above door, a 3/4" hole is drilled through each triangle near the top and cut away by 1/2 to catch bucket handle
- Attach 2 peak roof panels and caulk center seam
- Attach 4 door latches to side doors
- Attach eye screws inside and insert 20d nails and outside for door latches and yard fence attachment.
- Attach drinker hangers and support braces to inside wall to hang drinker chains on screws.

#### INSTALLATION :

Drill 5/16" hole in bucket and nipple drinker end cap and install tubing through 3/4" hole in side wall, underneath hanger bracket, hang nipple line, connect tubing, fill bucket and prime drinker.

Drill hole in side panel opposite water bucket hanger to insert extension cord wire w/ female end removed

Mount Flood lamp and hardwire extension cord in to flood lamp housing and connect to current. Install 2 - 250W heat lamp bulbs. Turn off and adjust to correct angle. Do not point directly at floor for risk of fire.

Drag unit to selected site in well mown grassy yard. Spread shavings over floor evenly

Fill feeder and place inside. Put grit on bucket lid and cover with feed and place in corner on bedding

Put in chicks, when conditions allow, grant access to outdoors by opening side doors and screen door to yard.

Attach power posts to plastic netting and install on one side from just outside opened side doors. Use extra posts as necessary to support fence, use twine to tie up fence to brooder

#### MANAGEMENT :

Observe chicks for 10 to 15 min upon entrance into brooder. Adjust lamp, drinker, and ventilation to achieve maximum chick comfort. Keep heat lamps directed into one corner at an angle. This will be the warm zone. Place feeder in opposite corner. The rest of the brooder will be cooler. Open one, two, three, or four of the side doors to create as much or as little ventilation as required. On cold days the brooder may remain closed and the peak vent will supply adequate air exchange. On hot days, open all doors either with or without the lamp on. In 90°F+ weather the chicks will not require a heat lamp in the daytime.

When suitable, as in a warm, sunny morning after the dew is off the grass, open the screen door on the yarded side and allow the chicks to run out. After a few days move the feeder outdoors permanently. They will readily go in the shelter for shade or to escape from rain. Turn light on at dusk to help lure stragglers in to roost. If unit is not level bedding will accumulate at lower end, use a leaf rake to level bedding as needed.

#### ATTRIBUTES :

This brooder is warm with insulation provided from the wood box sides. With one heat lamp and the chicks body heat it is easy to keep warm in the summer time. Additional lamps may be added as needed. In cold extremes seal vent with plastic wrap to reduce heat loss or cover with tarp. In heat extremes prop lids open with block to increase ventilation.

It is predator proof. The chicks are closed in at night when predation occurs. Keeping the unit near housing and human, animal or vehicle traffic will deter most aerial predators.

It is weather tight and well vented even if sides are totally closed. A full range of ventilation is available from all doors wide opened to all doors shut.

It allows natural light from early on as the chicks soon need the side doors opened for ventilation. Late term lighting is the full outdoors.

It allows for convenient water refill from outside the pen in bulk quantity instead of quarts or gallons.

It is portable so that the yard can be moved from place to place. It will not kill the grass at the site if care is taken to change thresholds every 3 to 4 days depending on the age of the chicks. 2 paddocks are served from one setting.

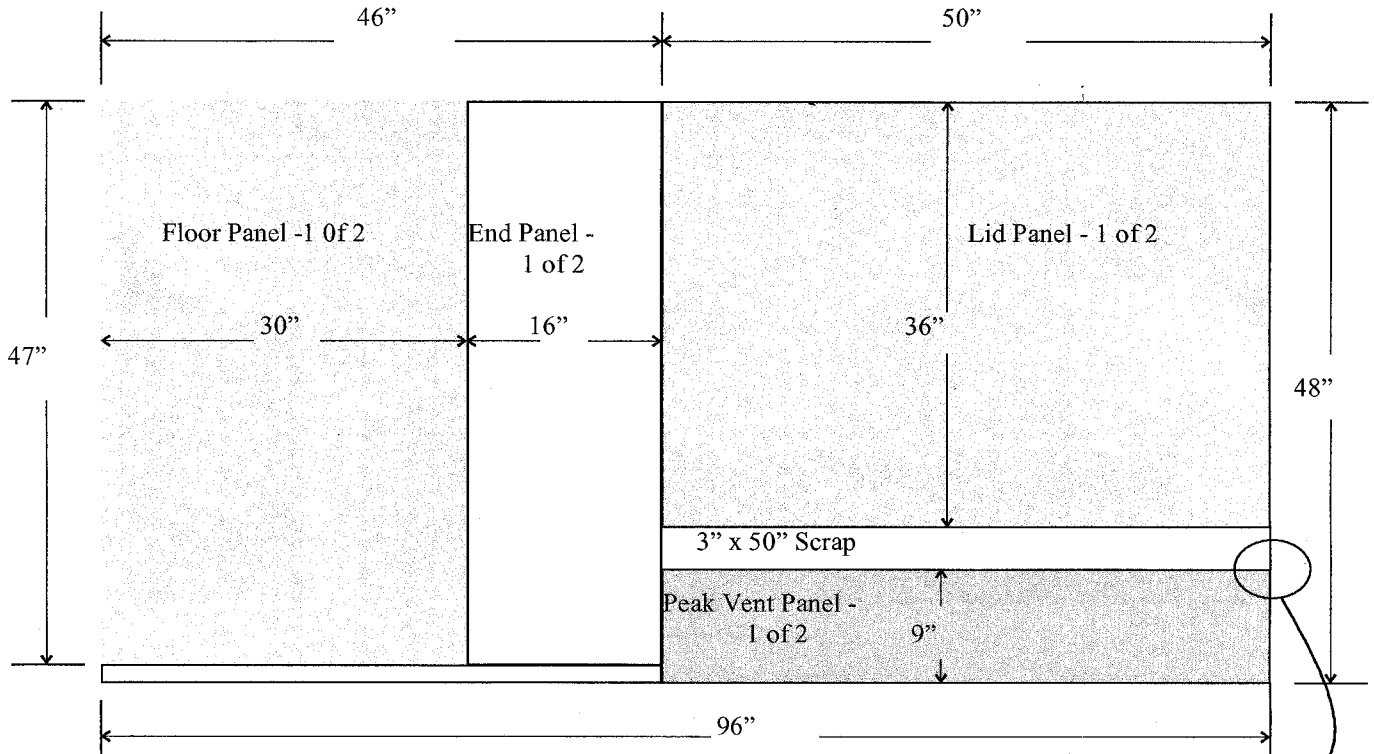
The brooder accounts for all the variables that affect chick comfort and renders each variable simple and easy to adjust. It allows chicks access to outdoors from early age and has the potential for near zero mortality performance.

It is assumed that as a back yard brooder it will be located near ones home where it is convenient to observe and care for.

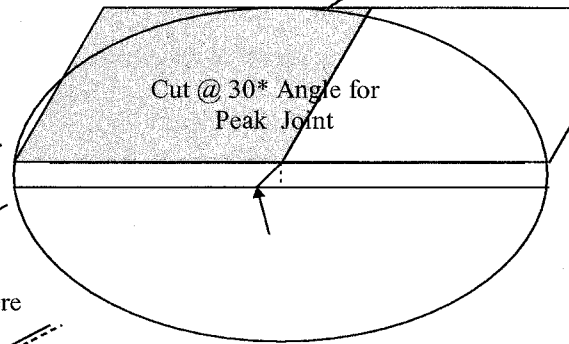
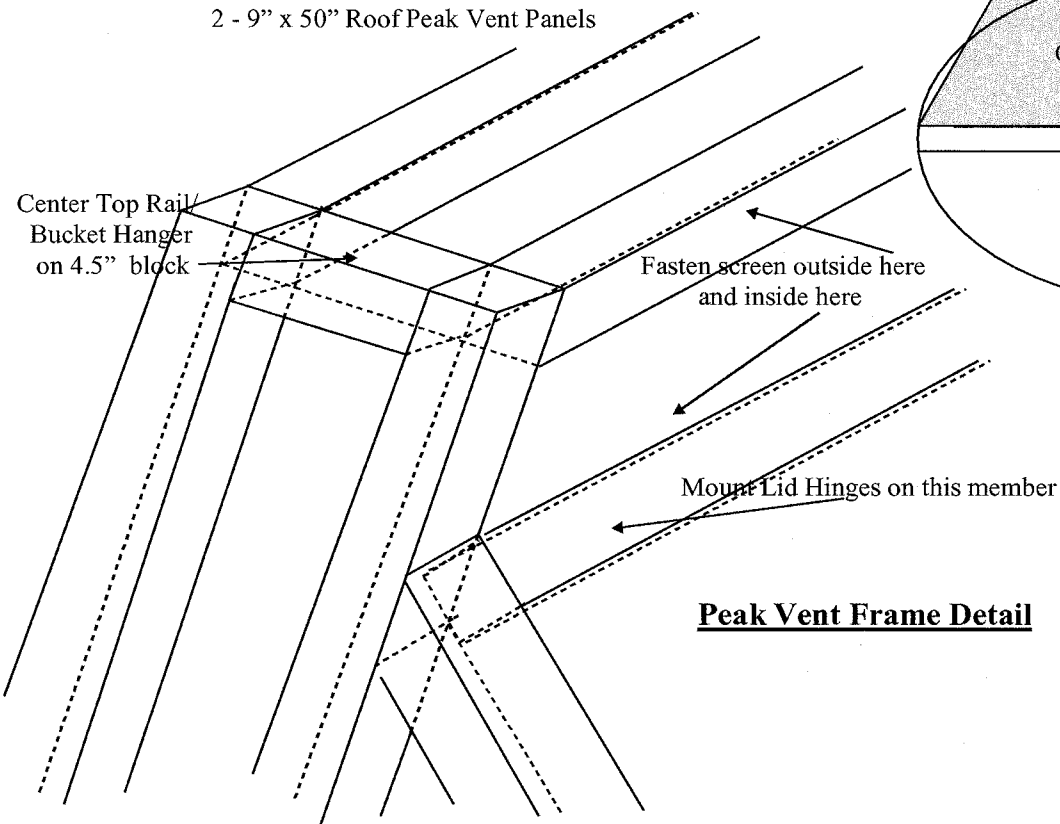
It is inexpensive. The performance per dollar invested ratio is very good. With \$50 of lumber and a days time to build the cost is not much more than the cardboard box while far exceeding it in performance and protection from weather and predators. It is capable of processing 1000 chicks per season - 100 chicks x 3weeks x 10 batches

# 4' x 6' (Nominal) Day Range Brooder Drawings

4' x 6' Brooder Cut-Out Patterns for 4' x 8' OSB/T-111



- Yield : Cut 2 - 4' x 8' Sheets to supply :
- 2 - 16" x 47" End Panels
  - 2 - 30" x 47" Floor Panels
  - 2 - 36" x 50" Lid Panels
  - 2 - 9" x 50" Roof Peak Vent Panels



**Peak Vent Frame Detail**