

## Successfully Brooding Turkey Poults

After hatching, a poult has basic needs that must be satisfied if it is to survive and become a healthy, high quality turkey. These basic needs are fresh air, clean water, quality feed, good litter and heat.

To provide the best environment, poults should be confined to an area where feed, water and heat are readily available. This can be done by using a variety of brooder set-ups. The setup will depend on house type, stove type, brooding equipment, past experience, company preference and the time of year.

### Shavings

- Use a clean, dry mixture of coarse and fine softwood shavings. Avoid hardwoods and wet sawdust.
- New shavings are recommended for every flock.
- Spread evenly at 3 to 4 inches (7.5 to 10cm) depth.
- Smooth to level prior to setting up equipment.

### Water

- Water lines should be cleaned and sanitized prior to placement.
- No vitamins or antibiotic should be added at placement unless for a specific known problem as prescribed by a veterinarian.
- Always use clean sanitized water.
- Provide one bell-type drinker per 100 poults.
- If using nipple drinkers follow the manufacturer recommendations.
- Adjust drinkers to avoid floods while making sure poults have good access to drinkers.
- Adjust automatic depth to ¾ inch (20mm); hand fill to drinker lip prior to placement.



- If using nipple drinkers in rings, double rings are recommended.

### Feed

- Pre-starter crumble or mini pellets should be good and consistent in size with minimal fines.
- Provide one 48 inch (1.2m) trough-type feeder per 100 poults to equal 1 linear inch (25mm) per poult; or provide a combination of one 18 inch (0.5m) red feeder and one bucket type per 100 poults.
- If using brooder rings, position feeders at least 12 inches (30cm) away from stove edge to prevent feed from getting too hot and place at least 12 inches (30cm) away from brooder guard to prevent pile ups.
- Fill feeders with fresh feed immediately prior to placement.
- Consider supplementing 48 inch (1.2m) trough-type feeders with 18 inch (0.5m) red feeders while poults are in rings for optimum feed consumption. Meat trays or egg flats may also be used.
- Keep feed clean and free from shavings, debris and manure.

### Ventilation and Temperature Control

- Confirm that stoves are properly set and that all ventilation equipment is operational.
- Calibrate all thermostats to ensure accurate settings.
- Set fan thermostats according to target temperature.
- Adjust ventilation to provide the minimum air exchanges required according to the lowest anticipated outside temperatures.
- Adjust vent openings to achieve adequate air flow and mixing. For wintertime ventilation a portion of vents may need to be closed off completely.
- Test vent operation to ensure all vents are opening correctly and closing completely.

- Use mixing fans to reduce temperature stratification and to improve heating efficiency. Small 18-24 inch (45-60cm) fans are recommended. Hang them close to ceiling approximately 50-60 feet (15-18m) apart.



- Seal cracks and areas where air can leak in causing drafts and heat loss. Pay close attention to end doors and curtains.

**Figure 1 Target Temperatures**

Age		Single or Double Ring Brooding		Large Ring / Whole House Brooding	
Days	Weeks	°F	°C	°F	°C
1		86	30	94	34
7	1	83	28	88	31
14	2	80	27	84	29
21	3	77	25	82	28
28	4	74	23	76	24
35	5	72	22	72	22
42	6	70	21	70	21
49	7	68	20	68	20

### Lighting

- Provide a minimum of 8 footcandles (80 lux) of light in house.
- Provide poults with continuous light for the first one to three days. Afterwards, poults should have 8-10 hours of continuous darkness per night.

### Heat Source

Heat sources used in brooding have changed and improved over the years to lower fuel usage, minimize temperature swings, reduce labor and maintenance cost.

The conventional “pancake” brooder stove is being replaced by infrared type heaters which are now being replaced by tube and quad radiant heaters. These are typically liquid propane (LP) or natural gas fired, but there are also hot water fin pipe heaters and electric stoves being used with good success. *See figure 2* There are advantages and disadvantages to each type of

heat source:

- LP and natural gas heaters add moisture and carbon dioxide (CO<sub>2</sub>) to the house environment. These must be controlled with proper ventilation.
- Natural gas heating is currently the least expensive type.
- Electric heating is typically the most expensive, but provides a dry heat without CO<sub>2</sub>
- Hot water fin-pipe heating provides dry heat with even heating patterns and no CO<sub>2</sub>. Initial investment cost is very high. Hot water boilers can be fired with coal, LP, or natural gas.

**Figure 2 Sample Heater Types**



### General guidelines for all heat sources

- Confirm that all heat sources are operating properly.
- Heat sources should be started 48 hours prior to poult arrival to warm the room, shavings, and floor. Target room temperature should be achieved at least 12 hours prior to poult placement. This may require turning on the heat source more than 48 hours in advance during extremely cold temperatures.
- Use a temperature gun to check floor temperature under each heat source 12 hours prior to poult arrival and just before poult delivery.
- Temperature sensor placement is critical. Do not place sensors too close to stoves, fans, vents, or drafty areas.
- If propane or diesel are used, check fuel level in tank to ensure sufficient supply.

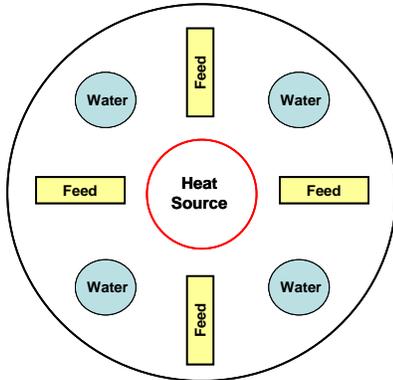
### Brooder Set-up

With the newer heater designs, brooder rings have increased in size from one stove per ring to multiple stoves per ring to whole house brooding. Reasons for this shift in brooding practices are labor savings, reduced

requirements for brooder ring material and fewer stoves.

## Single and Multi-Stove Brooder Rings

- Brooder rings should be 12-15 feet (4-5 meters) in diameter
- Use a heat source that is 25,000-30,000 BTU's per stove.
- Larger brooder rings may include up to four brooder stoves.
- Rings should be at least 2 feet (60cm) away from walls.
- Make rings with cardboard brooder guard 12-18 inches (30-45cm) high. If the house is drafty, use 18 inch (45cm) brooder guard.
- Adjust all stoves to 24 inches (60cm) above litter.
- Target a 3 – 4 foot (1.0-1.3m) “hot spot” of 100–105° F (38-40°C) in the center of the ring.
- Confirm that the cycling of each stove provides a hot spot of no less than 100° F (38°C) and no more than 115° F (46°C) at any time.
- Use one 75-100 watt equivalent brooder light per stove to prevent shadows and draw poult to heat source. Use only while poult are in rings.
- Place a maximum of 350 tom poult or 400 hen poult per stove.
- Feeders – Provide one 48 inch (1.2m) trough-type feeder per 100 poult to equal 1 linear inch (25mm) per poult; or provide a combination of one 18 inch (0.5m) red feeder and one bucket type per 100 poult.



- Drinkers – For every 100 poult use one bell or mini drinker. Follow manufacturer's recommendation when using nipple drinkers.



- After three days combine rings to include up to four stoves.
- After five to seven days poult can be released from rings.

## Large Ring or Whole House Brooding

- Use a heat source that is 45,000 BTU's or more per stove.
- Two stoves are recommended per ring. Each stove should be on a separate circuit.
- Position stoves on 40 foot (12m) centers to prevent cold spots.
- Stoves should ideally be located 7-8 feet (2.0 – 2.5m) above the shavings, with floor temperature under heater at 110-115°F (43-46°C) for day of placement. Floor temperature near side walls or inside the edge of cardboard rings should be 90°F (32°C).
- If piling becomes an issue, more heat may be required. Let the flock dictate the proper starting temperature. *See Figure 3*
- Rings should be at least 2 feet (60cm) away from the building walls.
- If using large rings make them with cardboard brooder guard 12-18 inches (30 – 45cm) high. If the house is drafty, use 18 inch (45cm) brooder guard.
- All feeders and drinkers should be down and accessible to the poult.
- Use chick paper - 24 inch (60cm), 30 weight - under the feeders and drinkers to attract poult.
- If poult are still not attracted to feeders, place a scoopful of feed every 3-4 feet (1-1.2m) on the paper under feeders.
- Typically after 36 hours poult have found the feeders and paper may be removed.
- Use supplemental feeders and drinkers as necessary.



Once poults are placed in the barn, they should be allowed a minimum of one hour to acclimate themselves to their new environment. After this time, further adjustment of the ventilation, stove height, stove temperature, drinkers or feeders may be necessary. Careful observation of the poults behavior and barn conditions will determine what adjustments should be made. *See Figure 3*

In addition to visual examination, it is very important to listen to the poults. Excessive noise may indicate wrong temperature or lack of water or feed. Avoid exposure of the poults to sudden temperature or environmental changes.

## Special Considerations

### Provide Daily Care

- Check drinkers and flush lines
- Keep feeders full
- Promptly remove mortality
- Ensure all equipment is functioning properly

### Create a heat pattern that is comfortable for all poults

- Eliminate floor drafts
  - Find and seal air leaks
  - Block drafts at side walls with brooder guard
  - Cover fans that will not be used until later
- Ensure stove output is sufficient for the barn during the coldest months of the year
- If using rings, consider smaller rings in the winter
- Use circulation fans, 24 inches (60cm) or less, to prevent heat stratification
- Allow the poults an hour to acclimate to the environment and then adjust ventilation and temperatures as indicated by poult behavior

### Address the needs of poults sourced from young breeder hens (first two weeks of production)

- Provide additional heat at placement to allow poults to settle
- Confine to a smaller area

- Provide additional feed and water
- Ensure shavings are level
- Provide additional monitoring

### Prevent Piling

- Make sure the floor is dry prior to spreading litter
- Pre-warm the house, 48 hours minimum, longer during cold weather
- Eliminate all drafts
- Ensure all stoves are functioning properly and the temperature is correct at poult level
- Monitor poult behavior and fine-tune barn temperature accordingly
- Ensure proper light and no shadows

Figure 3 Observe Poult Behavior

