JANUARY 2016: Building a Warming Box

In times of cold weather or when a housing facility is too drafty, newborn kids are more susceptible to becoming chilled and hypothermic. One way to help prevent or treat chilling is through the use of a warming box. Small or wet kids, or kids in a cold or drafty environment are susceptible to becoming chilled. If a kid is shivering or has a temperature below 39°C, it needs to be warmed.

It is important to note that if the kid already has hypothermia and is over five hours old, they may also be hypoglycemic and you must provide an energy source (feeding via stomach tube or abdominal cavity injection) before it is rewarmed to ensure wellbeing and survival of the kid. If the proper procedures for hypothermia are not followed, the kid to may convulse and die during rewarming. For more information on identifying and treating hypothermia please refer to Ontario Goat's "*Hypothermia and hypoglycemia in kids*" poster at www.ontariogoat.ca/hypothermia-poster and consult with your herd veterinarian.

Warming boxes should be kept at a temperature of 37 to 40°C (98.6 to 104°F). A household air thermometer can be added to your warming box to allow you to monitor the temperature. You will also need a rectal thermometer to identify chilled kids and to track the kid's temperature during rewarming. Monitor the kid during rewarming to ensure they are warmed evenly and do not overheat, taking their temperature every 30 minutes. Once the kid is warm (>39°C or 102.2°F) remove the kid from the box and clean and disinfect or dispose of the box.

There are a wide variety of ways to construct a warming box. These are only two of the many designs available. Ensure all materials are easily sanitized or disposable so they do not pose a disease risk to newborn kids. Boxes must be big enough for the kid to comfortably lie down.

Method 1 – Point source/localized heating

Materials needed:

- Insulated box (Styrofoam coolers or cardboard boxes work well)
- Point source heater (examples: heating pad or hot water bottle)

Steps:

1. Place the heat source in the bottom of the box.
2. Place a towel or bedding over the heat source to keep it clean and prevent it from scalding the kid.
3. Ensure there is a hole in the top of the box to allow humid air to escape, so the kid dries and is not over heated. Proper ventilation will also keep air in the box fresh even if the kid urinates or defecates while inside.
4. Rotate the kid often to avoid overheating one side while the other side is cold.

Method 2 – Forced warm air

Materials needed:

- Insulated area (examples: section off an area of a pen using plywood or cement board, or use a 50 gallon drum)
- Thermostatically controlled forced warm air heater
- Rack to support the kid (a wire rack, plastic or wood board with holes, such as slatted flooring)

Steps:

1. Cut an opening in the insulated area to place the heater in.
2. Place an elevated rack in the insulated area, box, or drum. This will hold the kid off the ground and allow warm air to surround the kid. If you do not use a wire rack to raise the kid, ensure the bottom of the warming box is heavily bedded. Straw is the ideal bedding, as kids can burrow into it.
3. Ensure there is a hole in the top of the box to allow humid air to escape, so the kid is not over heated. Proper ventilation will also keep air in the box fresh even if the kid urinates or defecates while inside.

This is an example of a forced warm air warming box. Stuart Chutter calls this his "*Hotbox Hotel*." He says it is normally kept in the barn. He puts a block radiant heater in the opening on the bottom left. The heater has an adjustable dial to control the temperature. He may put kids in the box for up to 45 minutes. He says, "I have even put kids I thought were "dead" in the box and come back in half hour to find them holding their head up... I think this thing is the best thing ever and is one of the most important pieces of "equipment" on my farm."

Note: These warming boxes will be cleaned and disinfected, with straw added for the next kids.

Warming box safety

Careful monitoring of warming boxes is necessary to ensure the kid's safe warming and to ensure the warming box does not become a fire hazard. Building a warming box using a thermostatically controlled circulating fan is the safest method of warming kids. However, other options exist that can help to ensure your kids do not develop hypothermia when chilled. A heat lamp can also be used as the source of heat for a warming box. When using a heat lamp, extra care, such as rotating the kid often, must be taken to ensure the kid does not become overheated as the risk is increased when using this heat source. Do not leave heat lamps on and unattended in your barn. When using a heat lamp for

supplemental heat, it should be placed at least 15 centimetres (cm) (six inches (in)) higher than the kid can reach, and a minimum of 50 cm (20 in) above the ground/bedding.

Heating kid pens

Some producers place heat lamps in pens to prevent kids from becoming chilled. If multiple kids are in a pen with a heat lamp extra care must be taken to ensure the kids do not bunch or pile underneath the lamp as this can result in injury or suffocation of kids. Avoid placing more than four to five kids or kids of different sizes under a heat lamp.

Note: Heat lamps may pose a fire hazard. You should check with your insurance provider to determine if using heat lamps in your barn will increase your premiums or if you will be covered in the event of a fire due to a heat lamp.

Length of time to warm kids

Newborn kids should be left in the warming box until they are dry, which could take a few hours. They can be left in heated pens for up to a few days. Be sure to closely monitor kids, as the length of time they need to be warmed will vary based on the design of your warming box/heated pen and each individual kid.

Additional tips for successfully warming kids:

- Follow the manufacturer's directions for any equipment used.
- Ensure that free-standing warming boxes are unable to tip by securing them to a wall or supporting them with objects placed around them. This will reduce the risk of fire.
- Do not allow cobwebs or dust to build up on warming sources, as these are fuel for fires.
- Make sure any cords or equipment is out of reach of the kid and any other animals.
- When using any kind of warming box for young kids, it is important to closely monitor the kids so that they do not overheat. This means taking the kid's rectal temperature every 30 minutes to ensure that the kid is slowly regaining body heat over time and that it is not overheating, which can be fatal.
- The normal rectal temperature for kids is between 39 to 40°C (102.2 to 104°F). Once your kids have reached a normal temperature, you can remove them from the warming box and place a sock or sweater sleeve with holes cut for the head and forelegs to keep them warm for the next few days.
- Keep a close eye on kids that needed to be warmed to ensure they do not become chilled again.

Tips to avoid hypothermia:

- Ensure newborn kids receive warm colostrum as soon as possible after birth.
- Ensure kids are dry – wet kids should be dried gently with a clean towel.
- Take steps to reduce or eliminate drafts in your barn while maintaining proper ventilation.
- Provide ample dry bedding.
- Place straw bales around the perimeter of your kid pen to reduce drafts.

Prevent chilling and hypothermia by ensuring your kidding area and kid pens are dry and free of drafts. Ample use of straw bedding is especially valuable in keeping kids warm. Make sure the bedding is dry and deep enough for kids to burrow in, so their legs are completely covered when laying down. When building a warming box, be aware of the risk of fire and danger of overheating your kids. Never leave a warming box on unattended. Careful attention to kids to prevent and reverse hypothermia is a key management practice that will help your herd to grow strong and productive despite Ontario's harsh winters.

For more information on facilities, management and best practices, consult the Ontario Goat Best Management Practices manual, visit our website or contact Ontario Goat at 1-866-311-6422 or info@livestockalliance.ca.

To sign up for an electronic copy of Ontario Goat's *Goat Gazette* please visit:
http://www.ontariogoat.ca/goat-gazette/

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