

## How to Make an Automatic Milk Feeding Bucket

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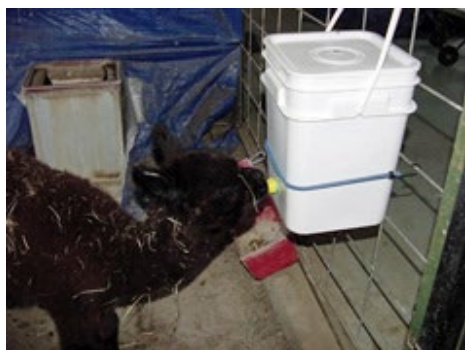
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### What you'll need:

- 5-gallon bucket. I repurposed a leftover kitty litter bucket, but a round one from any home improvement store will do as well.
- Pritchard nipple.
- The screw top of a plastic soda bottle. Make sure the size of the top is one that the Pritchard nipple will screw onto.
- A length of clear tubing. ¼" diameter fits right inside the Pritchard nipple and needs to be approximately 18 inches long. The length you need will be determined by the size of the bucket and milk reservoir.
- ¼" inner diameter slotted electrical grommet for hole in lid, just large enough for the tubing to fit through. (but it will work fine without it.)
- A container for the milk with tight fitting lid. I used the plastic container that nuts or candy come in at the big box stores.
- Rigid insulation cut to fit in bottom of bucket. I recycled some extruded foam that was used as packing material from a previous package, but rigid, foil back house insulation will work as well.
- Five 1-gallon zip style plastic bags, stuffed with alpaca or llama fleece.
- Two or three 6 to 8 inch blue ice packets.
- And for winter use, 6 feet pipe heating tape Duct tape
- plastic wrap
- permanent marker

### Tools you will need:

- A drill
- 1" to 1 ¼" hole drill bit or Forstner bit for hole in bucket
- 5/8" drill bit - for hole in lid of milk container
- Scissors or razor knife to cut off top of soda bottle



Shadeaux trying it out. It really didn't take long before he was happily using this anytime he wanted. First, I slowly, over several days, reduced temp of milk in his bottle until I was feeding cold milk. Then I held the bucket like a bottle so he would get the idea his bottle was bigger. Then it got hung on the fence, (Some owners have also used a chair with boxes to lift it to the right height to start out) and I came out at normal times to make sure he'd come in to feed. Soon (less than 2 weeks) he was doing it all on his own and all I had to do was fill the milk jug once or twice a day and of course give it a good scrubbing to keep it clean. FYI: pipe cleaners work really well for the tubing. I did eventually find a bigger container as he was emptying the smaller one too quickly.

**Editor's Note:** Dr. Callan, CSU Veterinary Teaching Hospital, recommends putting the milk reservoirs in the dishwasher between uses. Bacterial growth in the milk between reservoir changes is the greatest risk for health. Another word of caution from Dr. Callan: There is the possibility of an animal over drinking milk and getting a clostridial enteritis but most nursing crias will self-regulate their feeding.



First hole was too low.

You'll notice that on this original bucket, I had to adjust the nipple to a higher spot on the bucket; hence the extra capped off hole in the bucket. **IMPORTANT: THIS IS THE ADJUSTMENT TO THE POSITION** of the nipple I needed to make as the lower position (now a green cap) kept siphoning the milk onto the floor once the baby was done nursing. My barn cats thought this was awesome, but I wasn't too thrilled. I also shortened the flexible tubing, so he didn't have to suck so long to bring the milk to the nipple. So a shorter tube is better.

First drill a hole large enough for the cut off end of a soda bottle to fit through. Make sure the bottle top is one that fits the Pritchard nipple. You can

also cut a slightly larger hole and angle the bottle end down to approximately 20 degrees to better mimic the angle of mom's teats. Glue it in place to the bucket. I used fast drying epoxy.



Placement of bottle top in the bucket.



Rigid foam insulation

The figure to the left shows the thickness of the rigid foam I used for the bottom; I would say 1 inch is the minimum thickness to use. Set the bucket bottom down on the foam and trace around the outside. Cut the foam just a little smaller than the markings to make a good fit. I used a rigid insulation since I needed something solid to set the milk container on, yet still keep an insulation value on the bottom of the bucket to keep the milk cold. I also wrapped and taped the foam in plastic wrap, since milk will accidentally spill, and you want to be able to occasionally wash it and not let the foam soak up the milk. Spoiled milk smell is not pleasant.



Milk container

This is the type of container I used for the milk. The tube fits inside the red area of the Pritchard nipple. I did heat up the end of the tube to round the edges after it was cut to size.

Cut a hole in lid just large enough for the tube to fit through, or if you decide to put in a grommet for tighter seal (less leaking of milk) and to protect tubing from scrapes, make the hole just large enough that the grommet can be pushed into place and still have a bit of the lid edge to catch into the indentation of the grommet. I found a 5/8" drill bit was the right size. Smooth the edges of the hole with a sharp knife or sandpaper.



Use a grommet in the lid for a tighter fit



Cut end of tubing

Also note how I cut the end of the tubing that goes into the jar. (black line added for definition) By making a small notch on each side of the slanted end, it still allows milk to be drawn up even if tube end has gotten pressed against the side or bottom.



Measure the length of tubing

Next measure the length of tubing you'll need to go from the bottom of jar to the nipple. The tube is just placed into nipple using only pressure as a seal. Make sure the tube is placed at bottom of container when you measure and also when in use.

After placing the rigid foam insulation in the bottom of the bucket, place 4 of the gallon bags filled with fiber on each side or around the sides of the bucket. Put in the milk-filled container with tube already placed through the lid. Find a spot over or between the bags to attach tubing through the soda top hole and into the nipple that is then screwed onto the soda bottle top. Place blue ice packets inside of fiber against the milk container. Baby sucking draws the milk up the tube and to the nipple.



Add the fiber insulation

I found Vitamin D milk from the grocery store was the best solution to use in this kind of device, as often powdered milk mixes separate after a time, leaving a thick formula at the bottom where the tube is drawing the milk from like a straw



Top with one more blue ice if you like and the last gallon bag of fiber. This has kept the milk cold and fresh for 48 hours in 70-degree temps, with blue ice still having solid crystals when I changed it out. One study places one inch of felted alpaca at an 94R insulation value, and it is also key to keep the milk from freezing when the temps began dipping into the 20's.

As we started going into the low 20s, I had to come up with something to keep the milk from freezing. So here is what worked. Running heat tape inside the bucket from bottom to top, BUT outside the alpaca fiber insulation. This allows the ice packs to still keep the milk fresh, but not going down to freezing.



Placement of yellow heat tape

I had to make sure the milk tubing was run through and pretty much touching the heat tape both top and bottom as it went out to the nipple to keep it from freezing solid, especially as we went down to negative temps. I made a cut out for the cord to go through with the lid closed but kept the sensor inside the bucket but outside the fleece insulation.



**Notch for heat sensor tape**



**Heat lamp to keep nipple from freezing**

The last challenge was how to keep the nipple from freezing up with residual milk when the temps got to 15 below. An incandescent light bulb shining on it (I think this is a 75 watt) keeps it nice and thawed, and baby doesn't seem to mind too much. Put this light on a thermal cube sensor plug so it turns off if the temp goes above 45 degrees and turns back on when it gets to freezing.

This auto-feeder hasn't only worked for me; many farms have tried it and found it to be an effective way to feed their bottle babies.