

COMPOSTED MANURE PROVIDES "FREE" HEAT FOR WATERING LIVESTOCK

Build Yourself A "Barnyard Burner"

By Frank Buckingham

Bill Mayes, Brevard, N. Car., is convinced that his sheep thrive on water warmed to about body temperature. After reading several articles on the subject, he decided to try heating water for his own flock. But, he's a confirmed ecologist and didn't want to spend a lot of money heating water. So, he "made do" with what he had to build a "Barnyard Burner".

Mayes says he took a tip from *Mother Earth News* and now lets his sheep heat their own water. Or, more specifically, water is heated by composting sheep manure. He didn't have running water at his sheep barn, so he collects water from the barn roof and stores it in a used 500 gallon steel tank. He then coiled 75 ft. of 1-in. plastic tubing around the tank, with one end attached to the tank and the other end to a valve which controls water flow to the sheep waterer.

Twice a week, he scraped up manure, straw and wasted feed from the sheep feeding area and piled it all on top of the tank and coiled tubing. Salvage 1 by 2 in. welded wire mesh was used to make an 8 ft. dia. ring around the tank to hold the composting material in place. Once the pile starts composting, says Mayes, it settles almost as fast as he adds new material. In fact, almost half the tank was still exposed into January of last winter but water in the tank never froze at all. He then piled on some cow manure and old straw to cover the tank and increase heating.

So, in spite of several nights when the temperature dipped below zero and never got above 30° all day, the water stayed warm and he had no freezing. Mayes did, however, have to shove the valve back into the pile a short distance to keep it from freezing. He took about 100 gal. of water from the tank daily and says most of it was from 85 to 95°. "Sheep seem to like a water temperature of about 90°, or slightly below body temperature. If it's much warmer, they'll wait till it cools some," says Mayes. "I don't have any records to show that they ate less feed when I gave my sheep heated water. But, it makes sense to me that they eat less, or gain more, if they don't have to burn energy to warm water after they drink it."

Mayes hasn't tried warming water for his cows, but says he would if he gets the time and can find enough materials to build another compost heater for them.

Mayes runs a summer camp for boys — about 112 at a time from all over the country who spend four weeks working, playing and learning together. When FARM SHOW inter-

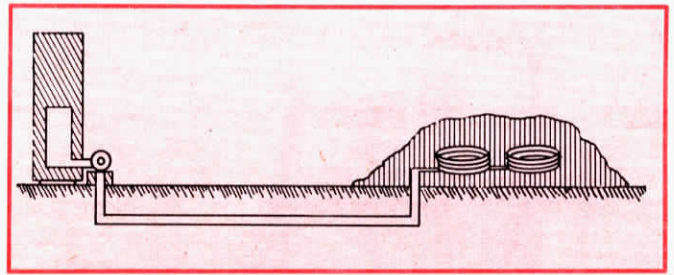
viewed Mayes in late July some of the boys were spreading compost from the water heater and were anxious to start a new pile to see how the system operates. "Everything here is recycled," says Mayes. "We compost grass clippings, dining hall scraps, garden residue, anything that will compost goes into a pile that's about 11 feet wide and up to 100 feet long. We also save and recycle paper, glass, cans and whatever else can be reused. It teaches the boys some lessons."

Composting experts say a mixture of about 25-30 parts carbon to one part nitrogen provides the best, quickest compost. But, like Mayes, most composters use whatever materials they have on hand. For instance, grass clippings and rotted manure have carbon-nitrogen ratios of about 20 to one; leaves range 40 to 80 to one, with an average of 50-60; and straw has an 80 to one ratio. Wood and sawdust have several hundred parts carbon to one part nitrogen and are quite slow to compost. But, too much nitrogen may cause the pile to give off ammonia, and too little nitrogen cause slow composting.

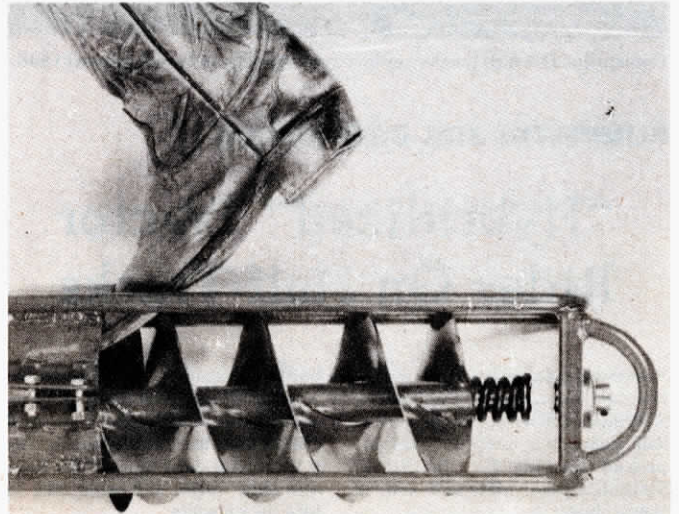
"The first pile I tried heated quickly and then "went out," says Mayes. "But the second pile worked better, providing hot water for about 15 weeks. There is no real convenient means of controlling temperature after a pile starts composting except to increase or decrease moisture content of the pile. It should be about 40%. Water can be added if material is too dry, or turning the pile will encourage drying it if it's too wet."

Some compost piles tested by *Mother Earth News* reportedly reached and sustained internal temperatures of 156° for several months. So, the amount of water which could be heated by a compost pile will depend on pile size, materials composted and thus pile temperature, size water tank or length of tubing inside the pile and the water flow rate through the system. Some people cover compost piles with black plastic before composting begins to retain moisture and heat. "I found that covering the pile was impractical when I was regularly adding more material to it," says Mayes.

A compost water heater might not provide a great deal of hot water in the coldest winter weather in some parts of the country. But, if the pile is protected from the coldest winds and composting gets started before cold weather sets in, Mayes feels it should generate enough heat to at least prevent the water from freezing.



Water circulated through heated compost pile travels through insulated underground pipe to heat exchanger, pump and gas water heater located 80 ft. away.



A stray foot quickly stops the 1 ft. long Foot Saver auger equipped with a spring-loaded slip clutch.

AUGER REPLACEMENT END HAS A "SLIP CLUTCH"

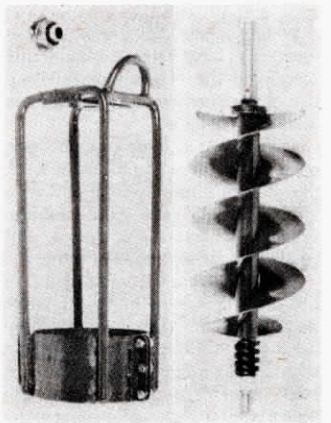
"Foot Saver" Helps Prevent Injuries

"It virtually eliminates the danger of injured feet or hands," says the manufacturer of the "Foot Saver", a new safety kit for augers.

The device consists of a 1-ft. long section of double spiral intake auger that attaches to your auger shaft through a slip clutch that stops the auger end from turning when a hand, foot or other obstruction gets in the way.

To demonstrate the device at a recent farm show, a company representative repeatedly jammed a gloved hand into a turning auger, stopping the auger end without a scratch. He made it clear, however, that a bare hand could be cut. "It takes only about 1/3 hp. to drive the bottom foot of an auger to load grain or fertilizer. If you get caught in it, you won't have to fight 14 hp. or more," the manufacturer points out.

The Foot Saver is made to fit practically any brand of auger in 6, 7 or 8 in. dia. To install the kit, just saw off the auger end, glue in the new shaft and flighting, and install the auger



Foot Saver and guard sections.

guard that comes with the kit.

The new device sells for about \$170. The company also makes a popular auger sweep that drives off your regular auger motor.

For more information, contact: FARM SHOW Followup, Quick Farms Ltd., Box 34, Wartime, Sask. Canada (ph 306 378-2782).