



The 1,000-head "beef dome" is surrounded by a ring of transplanted evergreens and located next to a conventional confinement building.

EASIER CLEANOUT, MORE ECONOMICAL TO BUILD

"Beef Dome" Makes Great Home For Cattle

By Bill Gergen, Associate Editor

You've never seen anything like this round "beef dome" built by a Michigan farmer to house 1,000 feeder cattle.

The round design of the "beef dome" offers optimum feed bunk area per square foot of living space and makes it easier to pump out manure, says the owner, Albert Hass. "I would have needed a 36 by 500-ft. long rectangular barn to provide 1,000 cattle with as much living space and linear feet of feedbunk per animal as I've got in this round barn. A round barn was more practical to build, and also more economical because I used several innovative cost-cutting measures. The sidewalls are partially open, sheltered by evergreen trees which provide a windbreak. About 28% of the floor area is unslatted, consisting of concrete sloping toward the pit. The pit was constructed without crosswalls, and less reinforcing steel was needed because we used a unique construction method."

Hass says he spent less than \$150 per head to build the "beef dome" which compares to about \$300 per head for a turnkey rectangular barn providing the same living space and feed bunk area. Much of the savings were realized because he acted as his own general contractor, casting all of the concrete work with his sons and experienced farm help.

The 160-ft. dia. circular structure has a 120-ft. dia. opening at the center. Directly under this opening, Hass erected a 60 by 80-ft. shed to provide additional shade for the cattle. The roof is 12 ft. high at the eave and 25 ft. high at the center. The building is divided into four equal pens, each of which holds 250 head of cattle at 18 sq. ft. per head. The pens are separated by 5-ft. high concrete walls. There's a 120-ft. dia. slatted floor on top of a 12-ft. deep manure pit.

A 3-ft. high feed bunk runs along the entire outer wall of the "beef dome". There's a paved alley for feed trucks all the way around the building's partially open walls. A row of 30-ft. tall evergreen trees was transplanted into a circle around the building to break the wind. "Cattle need three things - a dry place to lie down, fresh air, and protection from the wind. The slatted floor provides a dry place, open sidewalls allow fresh air, and the trees stop most of the wind yet provide some natural ventilation," says

Hass.

He uses only one pump to empty the entire 120-ft. dia. pit, with three permanently installed agitator guns in various locations throughout the pit. The agitator guns are equipped with nozzles that swivel 360°. Manure is pumped out through a permanent load-out pipe.

Hass says a pit under a conventional rectangular barn requires cross walls for structural reasons as well as for convenience of agitation. As a result, pits under conventional rectangular barns are partitioned to match pen size. "After you empty one pit, you have to pull up the pump, cover the hole, move the pipe, move the cattle out of the next pen and start pumping again. In this round barn I only need to set my pump once to empty manure from the entire 1,000 head structure."

To build the manure pit, Hass dug a 12-in. wide circular trench with a backhoe, set prefabricated reinforced rod in the trench, and poured concrete. After the concrete hardened he dug out the center of the pit and poured the floor. "This method of construction required less reinforcing steel," notes Hass.

The side of the structure consists of 6 by 6-in. treated poles spaced every 8 ft. to form a circle 15 ft. beyond the circular pit. A solid concrete floor slopes inward from the feed bunk to the slatted pit. The feedbunk is attached to the outer side of the poles.

The walls are wide open from a headrail above the feedbunk to the roof eave. James Geiger Builders, Harbor Beach, Mich., formed the roof sections, cutting edgesheets at an angle to fit the circular design. "There was less waste than expected because excess steel roofing off one edge was used on the other edge of each opposite roof section," says Geiger.

A 12-ft. wide alley goes through the center of the "beef dome". It's used to drive "finished" cattle to a nearby conventional barn equipped with a loading chute. By repositioning four gates, the alley can be converted so that it becomes an integral part of two pens.

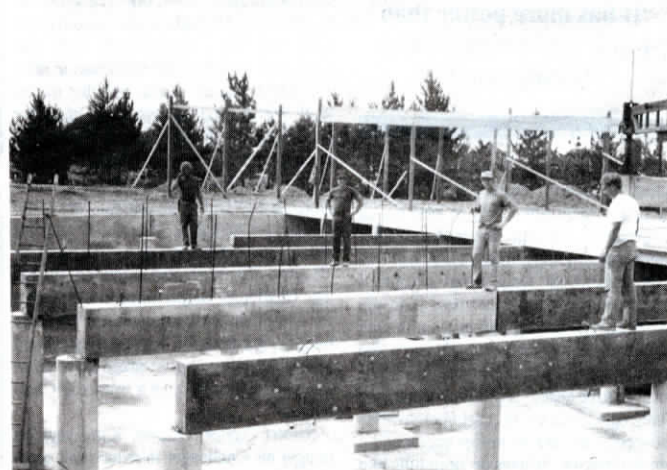
Two old bulk tanks, which serve as water tanks, are located at the junction of the four pens. One float valve waters all 1,000 head of cattle.



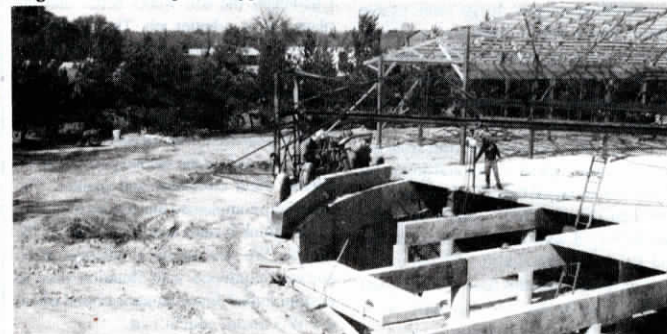
There was less waste than expected in roofing the building because excess steel cut from one edge was used on the other edge of each opposite roof section.



Hass poured the walls of the under-barn manure pit by digging a 12-in. wide circular trench, inserting steel reinforcing rod, and pouring in concrete. After the concrete hardened, he then dug out the center of the pit and poured the floor.



Huge concrete floor joists support the building's slatted floor.



Hass used a special-built crane to move truss beams and slats. The crane rode on two wheels just outside the pit, with one wheel trailing 14-ft. behind the other, and pivoted in the center of the floor.