



Kit extends wheelbase 10 in. on AC tractors, and up to 14 in. on Case tractors.

## INCREASES WHEELBASE FOR SMOOTHER RIDE, MORE CAPACITY

# Axle Extender For Case, AC Tractors

If you own a Case 2090, 2290, 2390 or 2590 tractor, or an Allis Chalmers 7000 series, you'll be interested in Grabill-Dixon's new front axle extender kits.

The kits extend the wheelbase an extra 10 in. on the AC tractors, and 8 to 14 in. on the Case models. Extending the wheelbase helps smooth out the ride in rough fields, leaves more room for saddle tanks and makes it easier to enter the cab when tanks are mounted.

The conversion kit includes the

axle extender, a lengthened steering arm, kingpin and longer power steering hoses. "All parts are built of the same quality material as is presently on the tractor," notes Don Grabill, president of Grabill-Dixon Corp.

The kit sells for about \$500, depending on tractor model and brand.

For more information, contact: FARM SHOW Followup, Grabill-Dixon Corp., 1702 Exchange St., Harlan, Iowa 51537 (ph 712 755-2911).

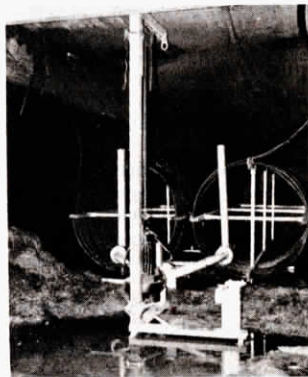
## DEVELOPS TEMPERATURES UP TO 120°

# Free Heat From Manure In Pits

Every barn built over a manure pit is partially warmed by heat from the composting manure below. Now, a group of Norwegian scientists has managed to tap that heat in pits not only to heat the barn above, but for other farm buildings and the farm home.

Hog farmer Njaal Sween of Kylstad, Norway, worked with ag engineers from the Agricultural University in Aas to outfit his 40-sow unit with the first experimental compost heat system.

By aerating manure in the pit with a submersible pump to stimulate aerobic digestion, it heats up to as much as 120°. A heat exchange system circulates water through about 900 ft. of 1-in. pipe submerged in the pit and runs it up through radiators in the barn or other buildings. Sween says the system kept his approximately 4,800 sq. ft. barn heated to about 68° throughout the winter even though outside temperatures reached 20° below zero or lower. The system, minus the aeration pump, cost



**By aerating manure, pit temperatures can reach as much as 120°. Up to \$1,500 savings can be realized when a water radiator system pulls the heat out of the pit.**

around \$2,500. Sween says he saved \$1,200 to \$1,500 on heating costs and plans to add about 600 more feet of pipe to the system for use this winter.



By suspending a net under slats, high value fertilizer solids can be retained while lower value liquids pass through.

## SEPARATES LIQUID FROM SOLIDS IN THE PIT

# New "Manure Net" Goes Under Slats

The first system ever for "in the pit" separation of liquid from solid manure has been developed by Holland's IMAG Institute of Agricultural Engineering in Wageningen.

Although machines are now on the market to separate feces from urine after the manure is in the pit, the Dutch researchers felt a simpler system of immediate separation, in the barn itself, was needed. Their solution was to suspend a net beneath the slats to catch solids while letting liquids pass through. The net is then cranked to one end of the barn by rollers and the solid manure dumped into a separate pit or gutter for removal.

IMAG engineer W. Kroodsmma told FARM SHOW the primary advantage of the system is that the separate solids have a high, concentrated fertilizer value and can be transported over longer distances while the lower value urine can be spread in fields closer to the barns. Also, daily separation of the manure slows down the development of bacteria, lessening smells. More straw can be used as bedding, making the animals more comfortable and letting the building temperatures be lowered.

The first net system is installed in a small partially slatted 80-hog confinement building. For each section of slatted floor, twice its length of net is provided. While one-half is directly beneath the slats, the other half

is rolled around a roller at one side of the barn. When the drive unit on the roller at the other end of the net is activated, the net is pulled beneath a scraper blade that scrapes the accumulated manure onto a conveyor belt and carries the manure out of the barn. Once the net is cleaned, the roller motor stops automatically and the drive unit on the back roller returns the net to its original position.

Key to the system, notes Kroodsmma, is finding the right net and scraping the manure off satisfactorily so the net will easily roll onto the roller. They've been using a synthetic mesh 1/32 of an inch and smaller, rolled up at the rate of about 3 ft. per minute. The mesh net is supported by a wire frame installed permanently below it.

Solids are dumped outside and spread regularly. Liquids are pumped automatically out of the building to a holding tank.

Kroodsmma says the institute is currently negotiating with a manufacturer to bring the system on the market. "Although we have only researched this with hogs, there's no reason the concept shouldn't also work in dairy and beef barns," he notes.

For more information, contact: FARM SHOW Followup, IMAG, Mansholtlaan 10-12, Postbus 43, 6700 Wageningen, Netherlands (ph 08370-19119).

Oddvar Tjernshaugen, engineer at the University of Aas, says the system could also be used in outdoor slurry tanks. Generally, manure should be emptied out twice a year to obtain the most heat from composting manure.

He adds that there are advantages of the system besides energy production. "There is a strong reduction in

odor by stimulating the bacteria in the manure. Secondly, well-composted manure is easier to handle."

For more information, contact: FARM SHOW Followup, Oddvar Tjernshaugen, Agricultural University of Norway, Box 15, N-1432, Aas-NLH Norway.