

A.O. Smith studying digesters

LANCASTER — Manufactured methane digester systems may soon become a new product of A. O. Smith Harvestore, possibly within a year, according to a member of the company's research department.

Fred Variani, A. O. Smith researcher, gave this possible timetable in a discussion of the company's research prototype systems that are located on five farms.

"These systems have been studied and improved to where they are almost at the point of being a product," he said.

"Perhaps, by next summer they will be."

The present five prototype

digesters will be supplemented with two more to be located on larger dairy operations. The present five are located on a beef, small dairy, poultry, hog and combined hog and poultry operation.

Variani concentrated his discussions during a report at Methane Digester Workshops in Lancaster and Somerset this week to the poultry and hog operation digesters.

"Two of the biggest problems we've encountered with the poultry digester," according to Variani, "are the buildup of grit in the digester and the need to remove feathers that accumulate in the manure particularly during

molting."

In its poultry digester, A. O. Smith has installed a floor valve that permits removal of accumulated grit before it affects operation. Every few months the valve is opened and the grit is flushed from the digester by head pressure into the lagoon, which is some 30 feet below the system.

The grit flushing reduces gas generation for about a day but has been found to be the easiest method of removal.

Feathers accumulated during molting are removed in an initial manure holding pit before the manure flows into the digester's holding pit.

Scum must also be removed periodically from the digester but is not nearly as serious a problem as the grit buildup.

The poultry digester is located on a 70,000 caged layer farm in South Carolina; while the hog operation digester is in Minnesota.

While the poultry digester generates electricity and sells it back only at peak periods, the hog digester was installed primarily as an environmental measure to eliminate an odor problem from lagoons.

The bio-gas is utilized about nine months of the year to heat the hog buildings and is vented the other three months.

Variani also said that no appreciable problems have been encountered in its larger digester from the combination of manure from a 450-sow farrow to finish and 120,000 caged layer operation.

The researcher said that considerable technology is now being utilized from Western Europe which is ahead of the United States in development and location of units.

But, he predicted, that the need for the digester units will continue to increase in the U.S. from both an energy and ecological standpoint.

Methane digester

(Continued from Page A1)

borders Indian Run, a tributary of the Cocalico Creek-Conestoga-Susquehanna River system that empties into the Chesapeake Bay.

The six farms contain diversified livestock including dairy, swine, beef and poultry, which generate wastes that are equivalent to 800 cows.

The six operations include three dairy only, one dairy and swine and two beef, poultry and swine farms.

While the overall area of the six farms covers some 500 acres, the livestock buildings are located in a corridor about one fifth that large.

Actual numbers of livestock located within an area some 3,000 feet long and 1,500 feet wide are 300 milking cows, 130 young stock, 500-plus brood sows, 1,200 nursery pigs, 1,200 finishing hog capacity, 300 steers and 185,000 broilers.

The tightly-knit agricultural complex of six diversified operations was considered ideal to study since a basic important consideration in the economics of a cooperative methane digester program is the cost of moving the manure, which is some 85 percent water, according to Gregory.

Each farm is too small for an economical individual digester system, but together they represent what would be equivalent to an 800-cow methane generator.

Gregory explained that the cooperative methane digester

operation could likely take the form of a corporation-type management among the six with a single individual from their families charged with the day-to-day responsibility.

Economic feasibility of the cooperative effort must include both the sale-back of electricity to a utility and the farmers sharing the utilization of the separated effluent from the digested manure. Utilization of the effluent would include sale of solids as a shrubbery and garden mulch, land application of liquids, and possibly including a percentage of solids and liquids into livestock feeding programs.

"But the digester does not solve the problem of excess nitrates," Gregory explained.

The livestock numbers on the six farms produce some 25 percent more nitrogen than would be needed if all available cropland were planted in continuous corn. Some of the farmers among the six rent neighboring land on which the excess is utilized.

But another plus of the digester system is the removal of any odor problem that conventional manure handling and disposal is causing in buildup areas.

With the collection of technical data completed by RCM, Inc., methane digester firm in Lancaster, the study is now being compiled by the Conservation District staff for presentation in the near future.

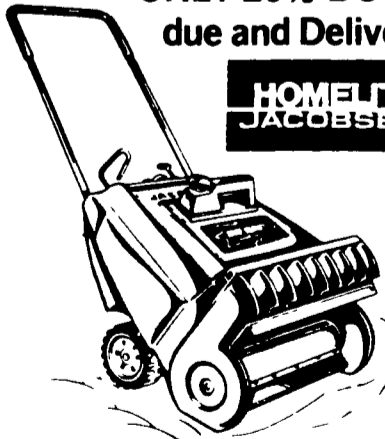


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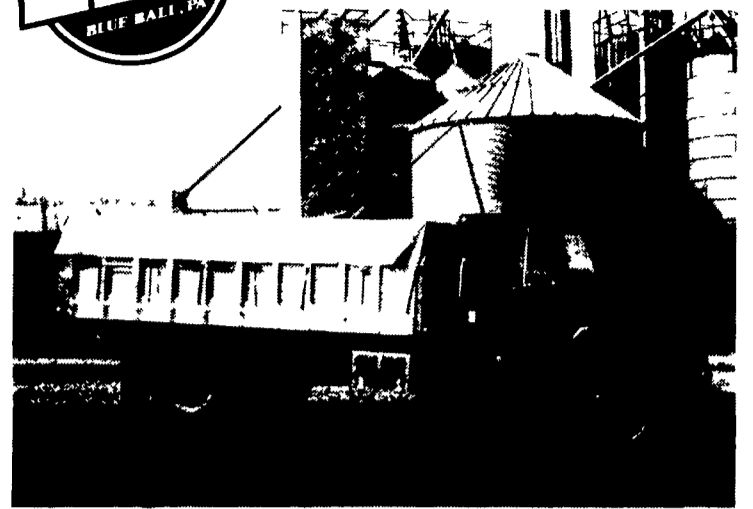
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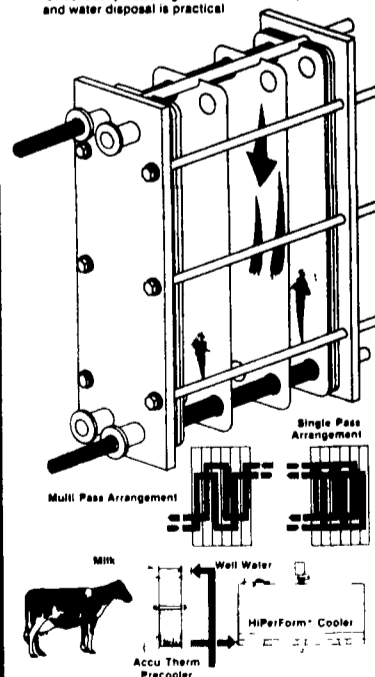
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