

*Cloisterdale Also Reduces Weight for Easy Disposal*

# Taking the Odor Out of Manure

By Glenn H. Herr  
General Manager,  
Cloisterdale Farms

Farm odors may be one of the toughest problems producers of livestock face in the next five years.

The fragrant odor of a newly mown field of hay is not the odor problem; but the putrid, offensive odors resulting from literally mountains of livestock wastes are the odors that raise the ire of our suburban dwellers. The odor complaint will affect both large and small producers. A complaint from one neigh-

liquid waste is moved or gets in motion, horrible isn't even a good description. Putrid doesn't even fit.

We could not continue with this system and live happily with our neighbors. But liquid manure is what we had, so liquid was what had to be moved. Our procedure:

1. Water V troughs inside houses were replaced with cups to stem the overflow that was constantly adding to our pit volume.
2. Lagoons were dug first to take the pressure off the volume

What is the Penn State system? Development of this system began in 1963 at a time when liquid or semi-liquid handling methods were being widely used, but without providing a satisfactory solution to the odor and handling problem.

The objectives at Penn State were (1) to remove as much moisture as possible from the poultry manure inside the poultry house in order to lessen the weight and volume of material to be handled, (2) to eliminate odors and flies, and (3) to develop an automatic system of



A Cloisterdale employe watches the conveyor for defective eggs. Except for defective eggs which are removed, eggs at Cloisterdale move directly from the hen

to the consumer without being touched by human hands. Herr says the eggs frequently are on the retailer's shelves within 24 hours of being laid.

This article by Glenn H. Herr, general manager of Cloisterdale Farms, originally appeared in the Farm Service Bulletin of Miller and Bushong, Inc., Rohrerstown.

In it, Herr describes the new manure system already installed in one of nine 30,000 bird units and planned for the remaining eight houses.

Herr also spells out why Cloisterdale went to considerable expense and trouble to obtain the new system and why he thinks other egg producers and farmers must consider such a system for the future.

In an accompanying article, Dr. Glenn O. Bressler, the developer of the new manure handling concept being pioneered at Cloisterdale, gives a report on the research which proved the new system.

The basic information in these articles has been widely discussed nationally in the egg industry. Herr and Bressler were both speakers on the new manure system at the Pennsylvania Poultry Federation meeting at Hershey this summer.

Lancaster Farming presents these two articles from two different sources to give a comprehensive look at what many persons close to the egg industry think may be a new development of great significance in the next several years.

Herr believes the development may be important for all farmers — not just egg producers — who have animal waste problems, particularly where the farm is near urban areas or persons who might object to farm odors.

The photos showing the manure disposal system at Cloisterdale and the farm's automated egg gathering system were taken by Lancaster Farming.

manure handling to eliminate manual labor.

Over the past seven years a system has been developed which meets these objectives:

Manure is dried to about 30 per cent moisture which reduces the manure weight to about 1/3 the original amount produced. This is accomplished by combining two simple drying techniques, stirring manure and blowing air at high velocity across the droppings.

Stirring was done with a specially designed rake and cleaning gadget. This gadget is drawn through the manure by a cable which is driven with a reciprocating power unit. Stirring is

time clock controlled and done about eight times daily.

Air is blown across the manure at velocities averaging about 500 feet per minute on a continuous basis. Fans are suspended about 15 inches above the manure.

The combination of stirring and blowing air across the droppings to speed drying not only reduces weight and volume of manure but also practically eliminates odors.

The basic reason for this accomplishment is that the anaerobic bacteria, which live in the absence of oxygen and cause the offensive odors in manure, cannot live in an atmosphere which

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bor in respect to farm odors can be sufficient cause to close down a farming operation.

Such are the ground rules now being established and enforced by local, state, and federal boards of health.

The day when the farmer can say "I was here first" is gone. Today it is up to the farmer to decide how he can live amicably with his neighbors.

Certainly, air and water pollution laws are becoming more stringent, and laws will be more rigorously enforced.

Now is the time for you as a producer of beef, cattle, dairy, swine, or poultry to take inventory of your farm situation in respect to farm odors and determine how long you can keep your neighbors happy.

At Cloisterdale we have had a serious problem of controlling odors from our egg laying complex of about 270,000 layers. Nine houses of 30,000 layers each, equipped with four rows of full-stair step cages suspended over deep pits to accumulate the poultry droppings, has caused us a horrendous problem.

The theory that with a deep pit the manure will be self-disintegrating and the pits would never need cleaning has proven false.

After less than two full years of operation much of the manure had already begun to liquify and the addition of water to the pits didn't help the cause of odor control.

Each day 35 to 40 tons of raw waste from these nine houses were being added to the pits. With little disintegration of the raw waste, one can visualize the scope of the problem.

Liquid waste odors are horrible when dormant, but when the

build-up within the houses. This we did, but there could be no constructing of enough lagoons (limited land area) to handle the whole job, and what was constructed soon filled and thus began the odor problems.

3. Irrigation was installed to pump from the lagoons to a permanent field set aside for this purpose only. Two problems were encountered:

- a. Constant clogging of nozzles
- b. Corrosion of the entire system within four months

And again, of course, odor problems expanded for the community.

4. Sewerage treatment, incineration, and burying all were deemed too impractical and expensive.

5. We then moved to direct pumping and hauling in 1,400 gallon tank trailers from the house pits to our fields and those of our neighbors. This had its problems also.

From our experience we concluded that some dry or semi-dry method had to be developed as our solution, as well as an industry solution.

Certainly, the problems of the poultry farmer are the same for hogs, steers, and dairy operations as well, and will increase in the future.

After a whirlwind tour of the country, visiting large poultry operations and agricultural experiment stations, we saw nothing that looked as promising as the drying method developed by Dr. Glenn Bressler and his co-workers at Penn State University.

Plans for converting one of our 30,000 layer cage houses were drawn up in cooperation with Penn State, and an installation was made last summer.



Eggs flow constantly from the cage operation at Cloisterdale. The eggs roll out of the cages onto conveyors, the conveyors

come together and bring the eggs on one conveyor into the packing area. This is the point just before sorting and packaging.