

Problem Can Be Solved -- Poultry Manure Handling In Suburban Areas

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An economical method of drying poultry manure inside a poultry house without the formation of offensive odors has been developed at Penn State University. Poultry droppings when voided contain between 75 and 80 per cent water. The drying system is designed to begin evaporating water immediately and reduce the water content to about 30 per cent before removing the manure from the house. This reduces the quantity of manure to be handled to about 1/3 the initial amount produced, thus saving in handling and hauling costs. Equally important is the advantage that the drying method used prevents growth of the anaerobic bacteria (growing in the absence of oxygen) which produce the offensive odors.

The drying system was developed as a component of the sloping wire floor egg production system. Basically, it consists of blowing air at velocities over 500 feet per minute across the manure as it falls to the floor underneath the sloping wire along with stirring the manure several times daily. Fans circulating air are mounted underneath the birds housed on the wire floor and about 15 inches above the manure. Fans are centered over floor areas 10 to 12 feet wide and spaced 50 feet apart lengthwise to the house. All fans but the one next to the cross elevator located at the end of the house blow air in a horizontal fashion. The fan next to the cross elevator is mounted so as to blow air directly downwards into the manure at velocities of 1000 feet per minute. These fans, circulating the warm house air across the manure at high velocities, results in rapid surface drying. Frequent stirring constantly exposes new moist surfaces of the manure to the air.

Stirring is accomplished with a specially designed device which also serves as a cleaning mechanism.

It is time clock controlled and through a series of reversing switches the system is automatic. Cleaning can be automatic or manually controlled.

When the manure is removed from the house at 30 per cent moisture it is finely textured and dry to the touch. It is ideal for field application or it can be further processed with a commercial dryer. After the later drying stage moisture content is cut to less than 10 per cent and the manure can be stored safely without producing offensive odors. Several potential sales outlets are now being explored for use of the dry fine powdered manure.

The first stage of drying inside the poultry house costs around \$3/ton of 30 per cent moisture manure remaining. This cost is calculated on the basis of the net increase in kilowatt consumption for ventilation because of the drying fans mounted directly over the manure. Cost per kilowatt is assumed at 1 1/2 cents. The cost does not include capital investment for the additional fans. Electrical costs for stirring are negligible. To dry the manure from about 30 per cent to less than 10 per cent adds another \$2 to \$3/ton of dry manure. Thus, for around \$7/ton for electrical and fuel costs a saleable product can be produced. It is saleable, because the offensive odors so common to poultry manure have been eliminated and is in a physical form which can easily be handled. The chemical content has excellent plant growth capabilities.

More detailed information can be obtained by writing to Dr. Glenn O. Bressler, Poultry Science, Department, Penn State University, 212 Animal Industries Building, University Park, Pennsylvania 16802.



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(right) watch workers on the production line. L. F. Photo

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