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MECHANICAL FLY CONTROL IS JUST ONE PART OF AN INTEGRATED PEST MANAGEMENT PROGRAM

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The common house fly is the predominate fly that pullet and egg producers must deal with year-round in the poultry industry.

Because of the warm, moist conditions common to Pennsylvania's high-rise houses, these flies can breed and multiply very rapidly.

Today, producers are motivated to control these pests not only to reduce the fly spots on their eggs, equipment and buildings and the bacteria they may deposit with every stop, but also the terrible nuisance they can incur upon the neighbors.

Nuisance complaints are on the rise as poultry farms are no longer situated in remote rural locations. Survival of poultry producers in some communities may well depend on their ability to manage flies to their neighbors' satisfaction.

Integrated pest management (IPM) is a double-barreled shotgun approach to dealing with flies. It doesn't rely on a single bullet approach to fly control, but uses many methods from each barrel.

One could say that the integrated approaches to fly control in a modern IPM program might even constitute a triple-barrel approach using mechanical, biological and chemical strategies to reduce fly populations.

No single approach can eliminate all your flies; furthermore, no short-term concentrated effort will eliminate them either. One must be prepared to work at fly control year-round, day after day with the same dedication that brushing your teeth daily can mean to reducing tooth decay.

Both biological and chemical control strategies have been addressed previously by Dr. Charlie Pitts, professor of entomology, in a previous ***Lancaster Farming*** article (April 3, 1993, page C2).

For this reason, I wanted to focus on mechanical fly control strategies that in some cases you can build into a hen or pullet house from the very beginning.

For example, there are dry manure housing designs on the market that can reduce the manure moisture below that critical 50 percent level that does not allow for fly breeding. Both domestic and foreign systems are available to producers in Pennsylvania and abroad.

Like everything, there is always a cost associated with these systems.

But one might consider them a worthwhile investment if you consider that some producers have spent as much as $15,000 a year to control flies in a 100,000-bird hen house. Furthermore, it is not uncommon to hear of others spending $5,000 to $10,000 for chemical control alone.

The two basic systems for drying manure in these new houses are one, to channel manure into narrow piles beneath the birds and deliver high velocity air on top of the piles to bring about drying. The second is to collect manure on belts and force warm drier air over the belts, thus reducing manure moisture.

These systems can add as much as $50,000 or more to the price of a basic 118,000-bird, side-wall inlet, negative-pressure house.

While on the subject of ventilation systems, there are some installations that are better than others for drying manure. One design that places all the exhaust fans on one side of the pit tends to dry manure well on that side where air velocity is greatest and less so on the other side. Exhaust fans mounted in pit walls at a height of three or more feet from the pit floor tend to do a poor job of drying the low-lying fresh manure on the floor of a recently cleaned pit, or the manure from a recently housed flock.

Not until the manure piles reach a critical height, that exhausting air moves over the pile, will these piles begin to dry. It is not uncommon to see fans mounted too high in the rear of long houses where the floor is dropped for drainage purposes without considering the increasing height of the pit fan.

Under low ventilation periods in a pullet or layer house of conventional design, it is difficult to move very much warm air over the manure. Under these situations, it may be an advantage to add circulating fans in the pit to remove manure moisture. Fans placed every 50 feet, pushing air in the same direction in a racetrack design, tend to pick up additional manure moisture for the exhaust fans under low ventilation periods.

Controlling water entry into the manure pit from any source is critical to maintaining dry manure for fly control. This means walking the pit daily to check for leaking waterers, monitoring water consumption and maintenance of the watering system (making sure there is correct filters and pressure), sanitation, and regular flushing. Nipple or cup placement within the cage can have an impact on jarring the device and shaking off additional water. Cups tend to allow more spillage than do nipples, but any device that is not well maintained can be a significant source of water leakage into the pit.

Another source of water that can be designed out of the pit includes groundwater coming from improperly sealed joints at the pit wall, pit floor junction, no drain tile, or aggregate at the footings or an improperly sloped system. If the slope of the pit door ramp comes back into the building, it will collect water and funnel it into the manure pit.

Some sanitation steps one can take to control flies include keeping all types of organic matter cleaned up. For example, moist feed attracts flies as it ferments and serves as a breeding site, as does manure. Therefore, prevent feed spillage into the pit from hoppers, troughs, or corner devices. Keep concrete feed bin pads cleaned of wasted feed. Don't allow broken eggs to accumulate under the rod conveyers or belts. Lastly, dead birds that are not properly disposed of to incineration, composting, or rendering can attract green and blue bottle flies that feed on dead animals. These dead birds can carry disease that flies can carry to your healthy bird.

Spreading poultry manure to fertilize your crops is an excellent use for the manure nutrients, but how one spreads manure influences fly emergence as well as the nutrient value of the manure. Manure spreaders that distribute large chunks of manure allow for further fly emergence because larva and pupa contained in large pieces may not be killed by the drying action of the sun and wind. Preliminary research results suggest that incorporating poultry manure with a moldboard plow reduces fly emergence better than use of a chisel plow. The chisel did a better job of incorporation than a disk and the disk was better than not incorporating the manure at all.

Similarly, the better job one can do in covering up the manure, the less ammonia, nitrogen and other nutrients will be lost to the atmosphere or run off from fields. Spring and fall fly emergence from fields has been a frequent nuisance to neighbors. Consider the fly egg, larva, and pupa status of the manure before spreading it on fields with neighbors in close proximity.

Lastly, fly traps that utilize an insect hormone attractant can serve as a part of an IPM program. Placed either inside the poultry house or outside beyond the exhaust fans, these can catch a considerable number of potential breeders and reduce the number that spread outside the poultry house.

Recently, a company has scaled up a bug zapper that will electrocute flies. When placed in the pit under the cage row walkways at 15 to 20 per house, they can have a significant impact on the adult fly population. Two ultraviolet tubes per unit attract the flies to the low amperage electrical unit that kills the adult fly.

No single component of an IPM program can eliminate all the flies in your poultry house. It will take manure management as well as taking several of the suggestions outlined above to make an impact. Chemical as well as biological control will most likely be needed in concert with mechanical measures to bring about long-term fly control.

Today, we not only control flies for our own benefit and the benefit of our birds, but to foster good relations with our neighbors.