

Elmtree 'cleans house' for poultrymen

BY JACK HUBLEY

ELIZABETHTOWN — Bacteria, viruses and other assorted microscopic beasts be advised: if Galen Young and Bernell Swords ever come gunning for you, your fate is sealed. When this crack pair of house cleaners throw the switch on their formaldegen generators, there won't be a crack or crevasse small enough to crawl into.

It's been that way here in Lancaster County since 1982, when a company approached Young and Swords about designing an effective fumigation unit. Young the electrical technician, and Swords the tool and die maker set to work hammering out a unit that they figured would get the job done.

Meanwhile, the company changed ownership and the project was scrubbed, leaving the two apparently trapped beneath a very hefty investment. Undaunted, the pair took the project by the horns and began doing their own fumigating as Elmtree Poultry Service in October, 1982.

Though there's nothing new about fumigation, Young points out that the traditional methods leave a lot to be desired from the standpoints of effectiveness and safety. One popular method involved the heating of formaldehyde powder in electric frying pans. Young maintains that the amount of chemical used in the pans is often incorrect, and the pans themselves lack the necessary heat to create adequate concentrations of gas.

Another technique involves dumping liquid formaldehyde into cans of potassium permanganate. The resulting explosion of lethal gas may be exciting, but it's a bit too dangerous for many people's tastes. Swords also says that the short-lived blast of gas fails to provide a complete coating on all interior surfaces.

Combining some input from Penn State with their own ingenuity, the two germ fighters feel that their fumigation techniques have improved upon older methods in a number of ways.

First, the team uses paraformaldehyde flakes which, according to Young, burn more efficiently and give off smaller gas particles which result in better coverage than formaldehyde. Specially designed hoods placed over the one-burner formaldegen generators regulate the speed of gas administration, and water pans located under the burners not only provide an added safety factor, but also add the necessary humidity for chemical adhesion to all surfaces.

Elmtree also employs three circuit breakers between the burners and main power source. This insures that the remaining burners will still be operating if one unit should fail.

Aside from the system's advantages over other fumigation

methods, Young and Swords feel that fumigation is an obvious improvement over conventional cleaning and disinfecting procedures.

"First of all, when you're washing down, where does your water come from?" says Galen Young, noting that the common practice of using stream water may only be compounding the farmer's contamination problems. "And if your disinfectant first has to kill bacteria in the water, how much disinfecting power will it have left for the house?"

But the biggest problem with water-based disinfectants is that they kill only on contact, says Young. On the other hand, gas will penetrate not only all surfaces within the poultry house, but also the attic when ceiling trapdoors are opened during fumigation.

Elmtree also encourages farmers to apply clean shavings to their house floors prior to fumigation. Fumigating the shavings eliminates yet another possible source of infection and leaves behind no harmful paraformaldehyde residues, says Young.

One Lancaster County farmer who agrees with Galen Young's assessment is Paul Brubaker, a Manheim area poultryman whose four houses produce more than 800,000 broilers a year.

"I don't want to sound like a salesman for these fellows, but I do think they have a good product," Brubaker says, noting that records for two of his flocks indicate a 1.29 percent decrease in mortality after switching from conventional cleaning and disinfecting to drycleaning and fumigation.

Brubaker also stated that some savings have also been realized at the slaughter plant where his condemnation rate (birds discarded at slaughter because of disease) has dropped slightly more than one-tenth of a percent since going to fumigation.

The poultryman also points out, though, that lower mortality and condemnation rates can also be attributed to tighter security throughout the poultry industry in the wake of the avian influenza epidemic.

"A few years ago we might have gone a whole year without washing down and disinfecting," he recalls, "but now things are cleaner the whole way down the line to the breeder flocks and hatcheries."

Galen Young turns to the condemnation certificates of another Manheim broiler producer for more statistics. One of the grower's 44,000-bird flocks was found to have 1,700 birds with leukosis after being raised in a house cleaned by the washing and disinfecting technique. After going to fumigation, the numbers of birds suffering from leukosis dropped to 500 in the next flock and 10 cases in the following flock.



1. Galen Young and Bernell Swords of Elmtree Poultry Service begin setting up their equipment of fumigate Paul Brubaker's broiler house. At left, Galen sets a formaldegen generator over a pan of water. Bernell then adds paraformaldehyde flakes to the unit. Each unit can fumigate an area 100 feet in diameter, with the paraformaldehyde used at a rate of one pound per 5,000 cubic feet.



2. Bernell places a hood over the generator. Hood design determines the speed of administration, says Galen, who's shown at right wiring a series of four generators to the house's breaker box.



3. Poultryman Paul Brubaker opens the door to the attic, insuring that fumigant reaches every portion of the house. With setup chores completed and everyone safely outside the house, Paul looks on as Galen activates the generator burners with a single switch.



4. With fumigation underway, Paul, Galen and Bernell enjoy a tailgate conference. Fumigation will continue for four hours before the units are turned off. Elmtree also has equipment capable of fumigating feed bins and silos.

One other big advantage of fumigation, according to Elmtree, is its cost, which Young calculates at one cent per every four cubic feet. Using one of Paul Brubaker's 44' by 500' houses as an example, Young says the cost of washing and disinfecting would be about \$600 to \$700, compared to the \$250 to \$300 range for fumigation. To prepare his houses, Brubaker spends about two hours in each one, drycleaning the interior with a blower and broom.

Would fumigation have been the answer to the avian flu problem? Young maintains that the technique could have done much to lessen the virus' impact had it been

employed across the board, although he does admit that more attention to cleanliness throughout the industry would have helped to avert a disaster.

And the partners emphasize that their system has many other applications, as well. Elmtree fumigated its first swine operation last fall, and the firm has recently been contacted by an Oxford area mushroom grower plagued by a microscopic worm that's been damaging his crop. Elmtree will be conducting experiments with a private laboratory to see if fumigation may provide the answer.

Other develops to come include a DC-powered fumigation unit to be installed on trucks used for hauling feed and chickens.

Within the next two years the partners hope to be manufacturing and leasing their systems nationwide. And judging from a track record that shows the Elizabethtown-based company expanding into Virginia, Delaware and Maryland within that same time span, this goal may well be within reach.

So for this pair of enterprising housecleaners from Lancaster County, the future will probably continue to be "a gas".