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A Guide for Fly Control Around Swine Facilities Pork Industry Handbook

Michigan State University

Cooperative Extension Service

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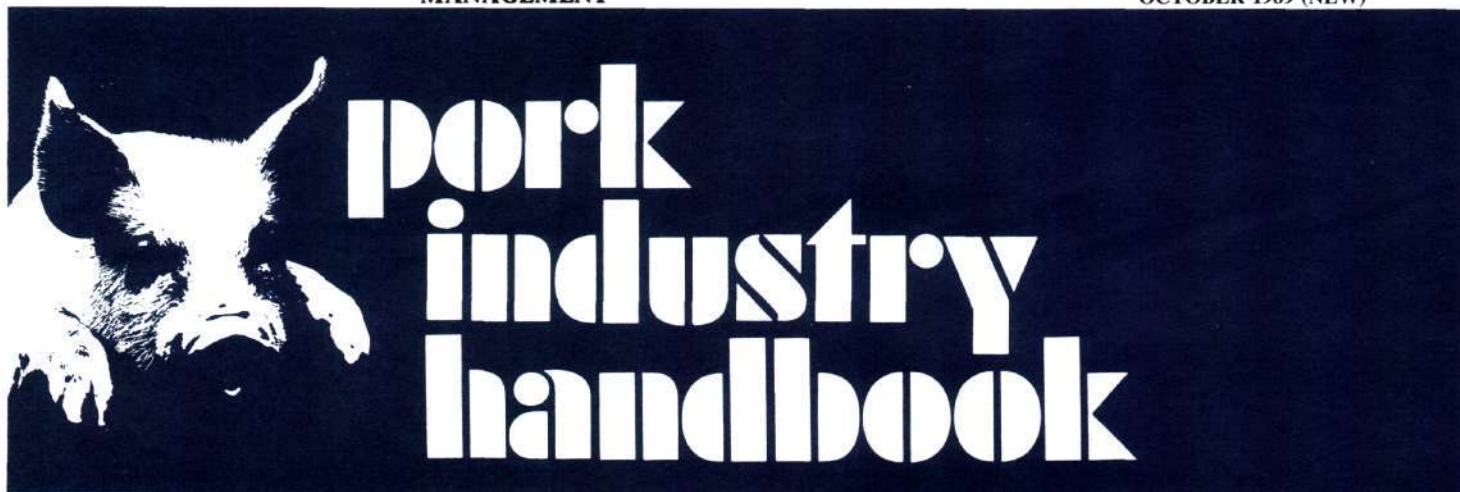
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COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

A Guide for Fly Control Around Swine Facilities

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Introduction

The house fly is the primary nuisance fly associated with hogs, although other species of the filth fly complex (little house fly, soldier fly, stable fly, and syrphid fly [rat-tailed maggot]) may also be numerous at certain times of the year. In addition, species of the biting fly group (mosquitoes, biting gnats, black flies, and tabanids [horse and deer flies]) may be pests if the hog unit is within the flight range of their aquatic breeding areas. Members of this group are blood-feeders and, when adults emerge, they must find animals on which to feed.

The biting fly group breed along or in streams, waterways, flooded pastures and, if they are not properly managed, in animal waste holding ponds. Holding ponds should have steep slopes and vegetation should not be allowed to grow near the water or on the pond slopes. The solids in a holding pond should be removed when no longer covered with liquid. Flooded pastures should be drained or treated for mosquito control.

Most filth fly species deposit eggs in moist, decaying, organic matter including swine manure. The life cycle is composed of an egg, larva, pupa, and adult stage. During the summer, a cycle can be completed within 10-14 days. The reproductive potential for house flies is very high with females depositing 400-600 eggs during their life span of 2-3 weeks.

Research indicates the effect of house flies and other filth flies on weight gains and feed efficiency of pigs is negligible. However, the possibility for disease transmission and for nuisance lawsuits generally makes the control of these pests a prudent management strategy.

Control Recommendations

The first consideration for a filth fly management program should be sanitation. If the doors, openings to aeration fans, and the drop down sides are screened, the number of flies entering a building will be reduced.

Animal waste, bedding, and spilled feed should be removed at least weekly. Disposal of the waste is critical to fly management. If the material is spread on fields, it should be spread thin enough to dry quickly or be incorporated into the soil; otherwise, it could become a fly breeding source. If the manure is stacked, it should have sharply sloped sides to prevent water penetration, or it should be covered with black plastic which creates enough heat to destroy fly eggs and maggots. Every swine facility, regardless of type, has some sanitation problem unique to that facility. The key to fly management is the prevention or removal of fly breeding sources. Proper drainage, prevention of wet areas around faulty waterers, and management of animal waste will greatly reduce fly breeding areas.

In slatted floor housing, where animal waste is handled as a liquid, the problem area may be in the waste pits. If the liquid waste is not agitated, the material will crust at the surface and flies will breed in the crust. Mechanical aeration, adding water and preventing the pits from overflowing (no closer than 1 ft. to the slats) prevents the formation of a crust. Feed and animal waste may accumulate at the top and sides of the pit. The use of high pressure washes at 2-wk. intervals should prevent this problem. Regular removal or drainage of animal wastes is essential to efficient manure management in housing systems.

The "Cargill"-style open-front type buildings are designed to facilitate easy cleaning if a high-pressure water system is available to wash the manure off the apron into drainage channels. Drainage of solids into a holding pond may become a problem if the slope is less than 3 degrees. Feed accumulation around, under, and behind feeders may create fly breeding areas.

The use of straw or other organic material for bedding in farrowing houses and in sow-nursing pig units is often a major fly source. When wet, this bedding provides ideal house and stable fly breeding so it should be removed at 7 to 10 day intervals. The sheds in a sow-nursing pig unit

should have removable or hinged tops for easy cleaning.

Dirt-pen systems (pastures) have few fly problems if the housing is periodically cleaned. Sudan grass, Sudex, or small grains can be planted seasonally in the pens; this provides some feed and utilizes the animal manure as fertilizer.

The worst fly problems often occur in pig units that utilize converted farm buildings (calf shed, poultry house, wing of a barn, etc.). These facilities are seldom designed to handle the animal manure efficiently. Good drainage for liquids and a minimum storage time for wet solids of 1 to 2 weeks is necessary to prevent fly breeding.

Insecticide Recommendations

The insecticide label provides information on treatment rates, mixing directions, and restrictions such as minimum treatment age, treatment-slaughter interval, and treatment-farrowing interval. Avoid contamination of feed and water sources with any insecticide. The insecticide recommendations made by Extension personnel should be reviewed annually because of possible label cancellations, new products, or new restrictions on use of old products.

Insecticides can be applied in several different ways for fly control at hog facilities. The most efficient and dependable method for fly control is the application of surface sprays on fly resting areas. House flies rest at night on walls, ceilings, and rafters inside buildings or under the eaves and on outside walls. Flies that rest on an insecticide-treated surface absorb lethal quantities of insecticide. Fly specks indicate resting areas of flies. Residual sprays should be effective for 7 to 10 days on shaded surfaces unless washed off or covered by dust. Rotate between classes of residual insecticides two or three times during the fly season to delay the development of insecticide-resistant fly populations. Residual insecticides include: dimethoate (Cygon®), diazinon, malathion, methoxychlor, stirofos (Rabon®), permethrin (Ectiban®), Atroban® and fenvalerate (Ectrin®). The label will contain mixing instructions and application rates. Generally sprays are applied to the point of runoff with either hydraulic or hand sprayers.

Short residual knockdown or area sprays can also be utilized in a fly control program. Area sprays include dichlorvos (Vapona DDVP), naled (Dibrom®), synergized pyrethrins, malathion, permethrin (Ectiban®, Atroban®), and fenvalerate (Ectrin®). These sprays are applied as a mist and the insecticide droplets kill flies they contact. Area sprays can be applied with mist blowers, hydraulic sprayers, or foggers. An area spray treatment should cover the space in and around the entire facility, including all

shaded fly resting areas such as trees, weeds, shady sides of buildings, and even the edge of fields.

Insecticide baits may be used to reduce fly numbers indoors, but will not provide adequate overall fly control if used exclusively. Baits can be used inside swine buildings, offices, and feed handling facilities but care should be taken to assure that pets or pigs do not have access to them. Baits can be purchased ready-to-use (Golden Malrin®) or some of the residual spray insecticides (methoxychlor, diazinon, malathion) can be mixed with water and sugar and used as a slurry for a bait.

Larvicides and feed additives can be employed for fly control. Larvicides are sprayed on fly breeding areas and feed additives are fed to an animal and pass through the digestive tract into the manure. Neither method is very effective because the acidity of the fly breeding material breaks down the insecticide rapidly. A second consideration is that resistance generally develops more rapidly when immature insects are treated. Almost any of the insecticides listed as residual sprays can be used as a larvicide. Stirophos (Rabon®) is the only feed additive registered for use with pigs.

Two methods of control can be used simultaneously. Area sprays can be rotated with residual sprays. Residual sprays will last approximately 7 to 10 days and the surviving, newly emerged flies can't deposit eggs for approximately a week. A knockdown spray can be applied when fly numbers start to increase and then in another week a residual spray can be applied to fly resting areas. This alternation of control methods should delay the development of insecticide resistant flies.

Biological control, which would utilize fly pupal parasites (wasps), has potential for integration into a filth fly control program. However, commercial companies seldom have the research basis for determining which native parasite species will provide the best control.

Summary

An effective fly control program requires a comprehensive animal waste management plan. Reliance on insecticides alone is costly, ineffective, and usually leads to the rapid development of insecticide-resistant fly populations. Each hog operation will have some fly breeding areas unique to that operation, and the key to good fly control is to find and eliminate those areas.

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