

Keeping Your Birds Healthy

BIOSECURITY BASICS FOR SMALL FLOCKS

Pest Management

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The primary goal of all pest control programs is the prevention and elimination of insects, rodents, free-flying birds, predators (i.e. raccoons and weasels) and other pests. Pests may introduce or maintain disease causing agents on a farm, kill or maim your birds and consume and contaminate animal feeds. Also many pests, like boring beetles and rodents, can destroy barn insulation, chew on electrical wiring and create serious fire hazards. Good housekeeping and sanitation are central to pest control in all facilities. Chemical and physical pest control measures may be necessary in conjunction with proper sanitation, storage practices, insect and rodent proofing, and a regular maintenance program.

In commercial animal facilities, an Integrated Pest Management program (IPM) is a requirement for a successful and productive operation. IPM is a system that makes use of several tools to manage pests and lessen their impact on your bird's health. The first line of defense in an IPM program includes proper facility design and construction, regular facility maintenance, an organized and tidy environment and proper sanitation. Pesticides should be used only as a second line of defense. A facility that relies only on chemical control and does not focus on more basic preventive measures runs the risk of inadequate control, pesticide resistance, environmental damage, and non-target species effects.

- A sound **construction** program for new or rebuilt structures creates a barrier that prevents pests from entering the facility. This includes, easily cleanable barn floors (such as concrete), proper sweeps on barn doors to keep out rodents and careful screening of soffit and fan openings to prevent wild bird entry.
- A sound **maintenance** program ensures that any breaks in these construction barriers are promptly repaired and sealed.
- A sound **exclusion** program prevents the entry of pests through windows, doors, vents, and on incoming goods.
- A sound **sanitation** program removes pest hiding places, and spilled feed or water on floors/around feed bins that could attract and support a pest population.



Solid covering over feed and water as well as netting over and around birds will protect them from the majority of pests.

Daily Activities in Pest Management

- 1 Eliminate sources of standing water.
 - 2 Keep grass and weeds cut around the barn (3-5 feet).
 - 3 Pick up and dispose of any refuse and garbage. Have proper, well-maintained disposal containers that can be sealed; empty them regularly.
 - 4 Close all doors when not in use. All windows should be screened.
 - 5 Carefully check all incoming bedding for pests and reject any infested or contaminated incoming supplies. For example: straw contaminated with raccoon feces and then used as animal bedding often results in raccoon round worms infecting birds resulting in neurological disease.
 - 6 Clean and remove dust as frequently as possible. Set up a cleaning schedule and follow it.
 - 7 Keep feed bins in good repair and rodent proof lids on feed storage containers and quickly clean up any spillage.
 - 8 Remove old equipment, lumber or debris that encourages hiding or nesting.
 - 9 Keep records of all of these activities. These records become the basis for effective on-farm biosecurity programs.
- All animals are potential carriers of pathogens. Key pests on bird farms include rats, mice, darkling beetles, mites, flies, wild birds, weasels, raccoons, skunks, and stray cats and dogs. Know what pests are present in your facility and for each type of pest find out about their life cycles, where they are found and how they could have arrived at your farm. Then design a monitoring regiment and an effective eradication and control plan.

Rodents (rats and mice)

Rodents are major vectors and reservoirs of bacteria and viruses. Map your facility and identify the severity of the infestation. Watch for droppings, rodent runs, burrows, gnawing marks, odours, and other signs of activity. Obtain baiting stations or traps and choose the bait that is applicable to your problem. Bait stations can be bought from feed supply stores, from rodent control companies, or they can be home-made. The most common one is a simple 18" x 3" diameter PVC pipe. Bait stations keep the rodenticides protected from the elements and away from non-target animals. These bait stations should be placed about 20-60 feet apart (depending on severity of problem) around the perimeter of the building, in the attic, entry rooms, or even near fences. Bring the baits to the rodents! Baits should be monitored for activity and always kept available, dry, and fresh (no moulds, dust, stale bait). Wear gloves when handling them.

Bait traps should be checked often. They should be kept away from the bird pens to avoid causing harm to your birds.



Baiting is most effective if your bird housing area is empty (i.e. during periods when birds have been sold, moved or between flocks) as you can intensify the effort during these periods. Once feed becomes unavailable, bait acceptance is enhanced. A good description of rodenticides available in Ontario can be found in the OMAFRA factsheet #07-009: **Rodent Control in Livestock and Poultry Facilities**, which is in the Supplementary factsheets (4.3).

Darkling Beetles (*Alphatobius diaperinus*)

Darkling beetles (adults) and lesser mealworms (larvae) have been found to carry *Salmonella* and other organisms including some viruses. They shed them in their droppings for up to 28 days. Examine used bedding and floor wall junctions for larvae and adult beetles after a flock is removed or pens are being cleaned. Monitoring traps can be made from PVC tubes, 12" x 1-1.5" diameter containing 12" x 12" piece of paper towel. Roll this and place it inside the tube. Place traps along the walls and near feeders for 1-2 days or even longer if the manure is still in the barn. After the sampling, dump the trap contents and count the insects. Score can range from slight (0-9) to severe (100+) infestation. Apply an insecticide after cleaning and disinfecting the premises. There are many insecticide products on the market. The total amount of solution to be used will depend on the types of surface being sprayed. Always read and follow the product instructions carefully.



Insect bait.

Flies

Flies are best controlled through:

- Proper management of feed, manure, and facilities;
- Use of beneficial insects (tiny wasps) that feed on immature fly eggs and larvae;
- Use of chemicals including various fly baits and papers.



Keep pools fresh and remove any stagnant water that will attract insects.

Monitor the severity of the fly infestation using sticky tapes, speck fly counting, or baited jug traps. Fly traps with bait (i.e. dichlorvos) are usually the best way to use baits. Flies may also develop resistance, so switching to other compounds may be necessary. Some chemicals have residual activity. Some of the products available* include: Disvap Spray, Vapona, Ectiban (permethrin), Tempo, Larvadex, Rabon, etc. Most of these can be obtained through local retail outlets, feed suppliers, farm supply stores or commercial pesticide companies.

Mites and lice

There are two main types of mites that occur in poultry in Ontario: red mites (*Dermanyssus gallinae*) and Northern fowl mites (*Ornithonyssus sylviarum*). Both types feed on blood and are found close to the skin. Due to the birds' feathers, penetration of insecticide to the site of infestation is often difficult. Spraying or direct contact application with a rag is necessary. Chemicals like permethrin (Ectiban), carbaryl (Sevin), malathion (Malathion 50) and dichlorvos (Ravap) have been used successfully. Other species of birds such as pigeons and ratites have their own species of mites, but the same chemicals have been found to be effective.



Insects

Insects such as mosquitoes and black flies can also be important transmitters of disease. Mosquitoes are well known to carry avian pox viruses as well as West Nile Virus. Blackflies can transmit bird malaria. Usually chemical means do not control these pests, but good facility maintenance, removing all possible sources of stagnant water and selected use of screening may help reduce the problem.

Cats

Cats can carry organisms pathogenic to birds and therefore should not be allowed entry to the restricted area. In many cases the food and water left out for the cat may be the reason there is a rodent problem. In some commercial operations cats have been used for rodent control. They should be regularly tested to be free of certain pathogens, (i.e. *Salmonella*), and not allowed access outside the barn once living indoors.

Other Pests

Weasels, foxes, skunks, raccoons, opossums and predatory birds like members of the accipiter hawks (Sharp-shinned hawk, Cooper's hawk and Goshawk) are common predators in pigeon lofts, back yard flocks and game bird operations. Proper fencing and netting, secure penning and screening of windows will help prevent these pests from entering. If these species become a problem contact a pest control professional.

Moles, gophers, ground hogs and squirrels may damage facilities. The best defense is to minimize habitats which they find comfortable for nesting and make certain they do not have access to feed. There should be no wood or garbage piles in the area and there are some mechanical repellants available including irritants, water sprayer, and sound devices. Erazze, Mole and Gopher Bait, Ground Squirrel Bait, and Tomcat are some chemical preparations that can be used.

Be aware of Human Safety Concerns

Be aware that all rodent and pest control products have biological, environmental, food safety, welfare, occupational safety, and regulatory implications. Always consult with pest control professionals and regulatory bodies to ensure that these issues are covered. Everyone that handles these products should be educated and trained.

SUGGESTED REFERENCES

Rodent Control in Livestock and Poultry Facilities.
OMAFRA factsheet #07-009 (4.3) in the Supplementary factsheets:

<http://www.omafra.gov.on.ca/english/livestock/dairy/facts/07-009.htm#rodenticides>

A Guide for managing Poultry Insects
<http://www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=499>

**Mention of trade names is not an endorsement for the products.*



Small rodents and mammals can cause severe damage and are a disease risk. Lowering suitable habitats like brush and long grass will reduce risks. Humane removal (such as this raccoon in a live trap) of pests is recommended.



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