Pest management in feed mills

The goal of integrated pest management is not to eliminate pests, but to maintain them below damaging levels.

by **Bhadriraju SUBRAMANYAM**

INTEGRATED pest management or IPM is the use of sampling information, assessment of cost-benefit and risk-benefit ratios, and judicious use of pesticides and alternatives for managing pests. IPM uses pesticides only when needed, thereby delaying the development of pesticide resistance and extending the useful life of pesticides.

Insects

Insects enter feed manufacturing plants through open doors and windows, so entryways should be closed. This, however, is not always possible. Air curtains above open doors prevent insect entry by creating positive pressure airflow near the doors. The use of plastic strips may also minimise insect entry. Broken windows should be screened with mesh screens, and damaged mesh screens should be replaced with new ones.

Bulk-stored grain should be inspected at the time of receipt and after storage at monthly intervals for signs and presence of insects. Measuring grain temperatures within silos and around metal bins provides an indirect measure of insect activity, because insects can cause dry grain to heat to temperatures of 42.2 deg C or 108 deg F.

Incoming ingredients, including delivery trailers, should also be inspected. If live insects are present, the grain should be fumigated with phosphine to kill all species and stages of insects. Bagged materials should be sampled with spear samplers or scoops, and the contents sifted to determine infestations.

Sanitation, both outside and inside silos, bins, and feed manufacturing plants (including floors and equipment), is the most important IPM technique. Paved grounds and plant perimeters devoid of any vegetation and food product spills eliminate harborages and are unfavourable for pests.

Conduct regular roof inspections to check for proper drainage and accumulations of products due, for instance, to leaks. Storage facilities receiving grain should be thoroughly cleaned and treated with an approved pesticide to control residual insect populations and to prevent contaminating insect-free grain loaded into the facility.

It is virtually mandatory to have an effective dust control system on the receiving and handling systems. But even with a good dust control system, some spillage will occur. Therefore, it is important to schedule regular cleaning in the receiving, handling, and storage areas. As a general rule of thumb, walls, overhead areas, and equipment interiors should be cleaned at least once a month.

Emphasis on cleaning and the use of insecticide sprays, fogs and/or mists in plant spaces may supplement general fumigations. General fumigation (with methyl bromide) requires proper sealing of the entire plant structure so that the toxic gas vapours can be held at lethal concentrations to kill insects effectively.

An effective alternative to fumigation is heat treatment using gas, electric or steam heaters, for disinfestations of the entire plant or specific plant areas. The temperature of the feed manufacturing plant should be raised to at least 50 deg C for 24-36 hours. For successful heat treatment, this temperature should be held uniform in all parts of the plant, including equipment. Because grain is a poor conductor of heat, removing grain and grain products from the plant enhances heat treatment effectiveness and prevents insects insulated by the grain material from reinfesting the plant after a heat treatment.

Take great care to ensure that finished feed products are not infested or contaminated in storage. Encrusted material and mould build-up in bins indicate condensation and a problem of high humidity in the bin. If packaged materials are to be warehoused, they should be neatly stacked on pallets and stored

Smell a rat?

THREE lines of defence are critical in any rodent management program. The first line is to intercept rodents entering a facility at the perimeter or fence of the facility. Harborages such as tall weeds and other vegetation should be removed, and tamper-resistant bait stations placed at regular intervals along the fence.

The second line of defence is around the building perimeter where bait stations should be placed at regular intervals. Woodpiles, empty boxes and logs near the building perimeter should be removed. Lawn should be mowed, and trees and shrubs pruned. Trashcans and dumpsters should be tightly lidded and kept away from the building.

The third line of defence begins with the building interior. All potential entry points like doors, vents, and pipes should be sealed to exclude rodents.

in organised units at least 18 inches from walls and upright supports. This arrangement minimises space along wall areas, facilitates cleaning, inspection and inventory taking of warehoused stock.

Birds

There are five basic approaches to managing a bird population: survey, sanitation, exclusion and habitat alteration, repellents, and population reduction. Surveys are necessary to identify the bird species and to study their activity patterns. Sanitation involves limiting or reducing access to food, water and shelter, and regularly removing nests.

While frequent clean-up of spilled grain outside feed plants is difficult and impractical, efforts should be made to minimise grain spillage. Cleaning clogged drains, leaks, and standing water on roofs will help remove water sources. Destroying nests will also greatly reduce populations of sparrows and pigeons.

The way a building is designed determines the extent of harbourage for bird populations. Therefore, building modifications play an important role in bird management. Repellents can either scare the birds away or make it difficult for them to use the building as a nesting or roosting site. Different wires, such as bird barrier coils, spikes, electrically charged wires, and piano strings have been used to physically prevent birds from nesting and roosting. In some instances, sticky substances have been used to repel birds.

Bird populations may be reduced by using toxic baits, traps, and sometimes, by shooting. Toxic baits have to be used with caution, as they may prove hazardous to other domestic animals or wildlife. Prebaiting with untreated grain will improve the efficacy of toxic baits.

Pigeons and sparrows can sometimes be trapped near their loafing or feeding sites. Traps should be placed in the shade, and food and water provided. Leaving a few birds in the trap will serve as a decoy to lure more birds. Shooting is possible where relatively few birds are present. However, large-scale shooting programmes should not be carried out because of safety reasons, and possible bad publicity.

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