Controlling Rats and Mice in Swine Facilities – Pork Industry Handbook
Michigan State University Cooperative Extension Service
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CONTROLLING RATS AND MICE IN SWINE FACILITIES

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Rats and mice can be a major economic threat around swine facilities. They consume and contaminate feed and cause feed losses through the gnawing of holes in feed sacks and wooden bins. They also have been implicated in maintaining or spreading diseases.

House mice (*Mus musculus*), Norway rats (*Rattus norvegicus*), and roof rats (*Rattus rattus*) as a group are considered the most troublesome and economically important rodents in the United States. These nonnative "commensal" rodents live under a variety of urban and rural conditions. They often thrive in and around farms and rural homes, and sometimes inhabit open fields and agricultural crops.

Norway rats will undermine building foundations and concrete slabs. Roof rats and house mice, in addition to Norway rats, are particularly destructive to building insulation. Most common types of insulation, including rigid foam and fiberglass batt, are susceptible to rodent damage. A rodent infestation can cause thousands of dollars in damage in a matter of months. Additionally, rodents frequently gnaw on electrical wiring causing equipment malfunctions, power outages, and fires as a result of short circuits. Norway rats and house mice are found in all of the contiguous 48 states, although the Norway rat may be absent from some relatively large geographic areas in the West. The roof rat primarily occupies coastal areas of Washington, Oregon, and California, as well as a larger area encompassing the coastal states from Texas to Maryland. The roof rat is much less of a concern to pork producers.

Rodents and Swine Diseases

Rodents and other wildlife can play an important role in the transmission of swine diseases, although the occurrence of such diseases in rodents and their contribution to disease problems on hog farms is not well documented.

Table 1 lists swine diseases that rats and mice may harbor or disseminate. Rodents, like other wild animals, insects, and people, are capable of carrying diseases into a swine facility. Rodents can spread or accelerate the spread of diseases from contaminated areas to uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. As an example, Norway rats may travel through infected feces of sick pigs and then contaminate feed or water several hundred feet away. Rodents, if eaten by swine, also can directly transmit diseases.

Additionally, rodents around farm buildings are a food source that can attract predatory animals such as foxes,

Table 1. Diseases of swine in North America that rodents may harbor or transmit.

Disease	Agent	Rodents implicated
Bordetellosis	bacteria	rats
Encephalomyocarditis	virus	rats, mice
Leptospirosis	bacteria	rats, mice
Pseudorabies	virus	rats*
Salmonellosis	bacteria	rats, mice
Swine Dysentery	bacteria	rats, mice
Swine Erysipelas	bacteria	rats
Toxoplasmosis	protozoan	various rodents
Trichinosis	nematode	rats

*Opinions differ on the significance of rodents as the reservoir or vector.

coyotes, raccoons, skunks, or stray dogs and cats, that in turn may contribute to disease problems. An effective disease barrier system cannot be achieved or maintained without good rodent control.

Recognizing Rodent Infestations

Droppings, tracks, burrows, pathways, and fresh gnawings including damaged feed sacks, indicate areas where rodents are active. Rodent nests, made from fine shredded paper or other fibrous material, are often found in sheltered locations. Insulated walls and ceilings are common nesting locations for rodents, especially mice. Rats also use these areas as well as burrow into the ground inside and outside of swine buildings. When present in relatively high numbers, rats and mice occasionally can be seen during daylight hours, but they are most active at night, particularly just after dusk. Thus, conducting an inspection of the premises at nightfall may assist in identifying the location, distribution, and severity of a rodent infestation.

Rat and Mouse Facts

House mice are small, brownish to grayish rodents with relatively large ears and small black eyes. They weigh about 1/2 oz. An adult is about 5 1/2 in. to 7 1/2 in. long including the 3- to 4-in. tail. Norway rats are large, robust animals whose fur color ranges from reddish to grayish brown on the back and sides and gray to yellow-white underneath. They are about 13 in. to 18 in. long including the 6- to 8 1/2-in. tail. Average weight is about 11 oz, and few individuals exceed 1 lb. In comparison, the roof rat is a smaller, sleeker rat usually colored blackish to gray, with a gray to whitish underside. A roof rat, in contrast to the Norway rat, has a tail longer than its head and body combined, and a more pointed snout. Also, its eyes and ears are relatively larger than the Norway's.

Although commensal rodents often feed on cereal grains, they will eat many kinds of food including garbage, insects, meat, and even manure. House mice are sporadic feeders, nibbling bits of food here and there, but often causing more economic loss from gnawed feed sacks, contaminated feed, or from transmitted disease than from actual food consumed. Rats tend to get their daily food at one or two locations. They require 1/2 oz to 1 oz of water daily (unless feeding on moist or succulent foods), but house mice can survive for long periods without free water.

Rats and mice have keen senses of taste, hearing, smell, and touch. Roof rats are excellent climbers and often live on the second story of farm buildings if food is available. House mice and Norway rats will climb to reach food or shelter, and all three species can climb any rough vertical surface. They can run horizontally along wire cables or ropes and can jump up 36 in. (12 in. for house mice). Rats can squeeze through openings slightly larger than 1/2 in. across, while house mice require an opening slightly larger than 1/4 in.

These rodents have impressive capacities for reproduction, which makes it necessary to control them early and diligently, before populations reach levels that cause significant damage. For example, in a single year a female house mouse may have 5 to 10 litters of usually 5 or 6 young each. Young are born 19 to 21 days after mating, and they reach reproductive maturity in 6 to 10 weeks. The life span of a mouse is usually 9 to 12 months. Norway and roof rats are only slightly less fecund, with individuals typically living 9 to 12 months but sometimes longer. Where both rats and house mice exist on the same premises, rats may exclude house mice from their main areas of activity. Following the control of rats, mice may flourish.

Rodent Control

For effective control, we recommended an integrated pest management (IPM) approach that incorporates the timely use of a variety of cost-effective control methods, including: (1) sanitation, (2) rodent-proof construction, and (3) population reduction. The first two are preventive measures. When an infestation already exists, population reduction is typically needed. Reduction techniques include trapping, toxic baits, and fumigation. Another important component of an effective IPM program is pest population monitoring. Records of trapping success and measures of rodent activity will help to determine the need for additional control efforts.

Sanitation. Although good sanitation will seldom eliminate rodents, it certainly will aid in controlling them. Conversely, poor sanitation is sure to attract rodents and permit them to thrive in greater abundance. The continual presence of a sizable rodent population suggests that too little attention is being given to the proper maintenance of the facilities. Although inadequate sanitation contributes to more serious rodent problems, rodent infestation (particularly house mice) does not necessarily mean that sanitation is inadequate.

On farms where feed grains are handled and stored, or where livestock are housed and fed, it is generally impossible to exclude rodents from all available food. In such situations, removing shelter that rodents can use for hiding, resting, and nesting is valuable in control. Regular removal of debris and control of weeds around structures will reduce the amount of shelter available to rodents. Additionally, a clean, 3-ft weed-free perimeter around structures may make rodents feel more "exposed" and permit easier detection of rodent activity.

It is almost impossible to eliminate house mice through sanitation alone, particularly on farms, because they can survive in very small areas with limited amounts of food and shelter. Most buildings in which livestock feed is stored, handled, or used, will support a thriving population of house mice if the building is not mouse-proofed. Store feeds in rodent-proof buildings, rooms, or containers whenever possible. Stack sacked feed on pallets with adequate space left around and under stored articles. This will allow easy inspection for evidence of rodent activity, and it will facilitate placement of traps or baits.

Rodent-proof construction. A lasting form of rodent control is to "build them out" by eliminating all openings through which they can enter a structure. Where feasible, rodent-proof all places where feed is stored, processed, or used.

The paired front (incisor) teeth of rats and mice curve

Table 2. Recommended materials for rodent-proofing.	
Concrete	Minimum thickness of 2 in. if reinforced, or 3 3/4 in. if not reinforced.
Galvanized sheet metal	24 gauge or heavier. Perforated sheet metal grills should be 14 gauge.
Brick	3 3/4 in. thick with joints filled with mortar.
Hardware cloth (wire mesh)	19 gauge 1/2 x 1/2-in. mesh to exclude rats; 24 gauge 1/4 x 1/4-in. mesh to exclude mice.
Aluminum	22 gauge for frames and flashing 20 gauge for kick plates 18 gauge for guards.

slightly inward, making it difficult for them to gnaw flat, hard surfaces. However, when given a rough surface or an edge, they can quickly gnaw into all but the hardest of materials. By gnawing, rats can gain entry through any opening greater than 1/2 in. across. Mice can enter a building through any opening larger than 1/4 in. across. To prevent rodent entry, seal all such holes with durable materials. Steel wool, packed tightly into openings, is a good temporary plug. To close openings or protect other areas subject to gnawing, use materials such as those listed in Table 2. Plastic sheeting or screen, wood, rubber, or other gnawable materials are not adequate for sealing openings used by rodents. Close openings around augers, pipes, and wires where they enter structures with mortar, masonry, or metal collars. A common entry point for mice into buildings is the unprotected end of corrugated or ribbed metal siding. If not blocked with metal or mortar, these openings provide access into wall spaces and the building interior. Rubber or vinyl weather stops are quickly gnawed through. Design or modify buildings so that metal siding butts directly against the sill plate or foundation.

Doors, windows, and screens should fit tightly. It might be necessary to cover the edges with metal to prevent gnawing. Depending on the age and type of construction, it might not be feasible to rodent-proof the building. In such instances, more attention must be given to other techniques of rodent control.

Rats (and other wildlife) can be discouraged from burrowing near foundations by laying a strip of coarse gravel around their perimeter. Gravel should be at least 1 in. in diameter and laid in a band at least 2 ft wide and 1/2 ft deep. Rat burrowing under concrete slabs or foundation walls also can be prevented by installing a buried curtain of 1/2-in. hardware cloth, extending downward 12 in. to 18 in. with a lip at the bottom extending outward 12 in. (Figure 1).

Trapping. Trapping is an effective way to control rodents. House mice are relatively easy to trap, but trapping rats requires more skill and labor. Try trapping first where rodents are few; severe infestations will likely require additional measures. Trapping has several advantages: (1) it does not rely on potentially hazardous rodenticides; (2) success is easily visible; and (3) it allows for disposal of the rodent carcasses, thereby eliminating dead animal odors which may occur when poisoning is done within buildings.

The simple, inexpensive wood-based snap trap is effective. Snap traps are available through farm supply or hardware stores and from pest control suppliers. Bait the traps with a mixture of peanut butter and rolled oats or with a small piece of bacon, lunch meat, or cheese tied securely to the trigger. Set them so that the trigger is sensitive and will spring easily. You can reduce the chance of creating trap-shy rodents by leaving traps baited but unset until the bait has been taken at least once.

Multiple-capture live traps for mice, such as the Victor Tin Cat® and the Ketch-All® are effective and will save service time. They, too, are available in some hardware and feed stores as well as from pest control suppliers.

Set traps close to walls, behind objects, in dark corners, and in places where rodent activity is evident. Tracking patches of talc or flour can be used to determine where rodents are active. Traps may be placed on ledges or on top of pallets of stored materials if mice or rats are active there. Where possible, place snap traps so that rodents will pass directly over the trigger as they follow their natural course of travel, usually close to a wall (Figure 2). Some snap traps, such as the Victor® Professional, have enlarged triggers that catch rats or mice when they travel over them. When set correctly, it is possible to catch rodents that are not even attracted to baits.

Use enough traps to make the campaign short and decisive. Mice seldom venture far from their shelter and food supply, so space snap traps no more than 10 ft apart in areas where mice are active. When using snap traps, it may be best to trap intensively for 2 to 3 weeks and then "rest" for a couple weeks before resuming efforts. This may save some labor costs and helps prevent rodents from becoming "trap-shy." Place multiple catch traps in areas where mice are persistent and where mice are gaining access to the building (for example, on both sides of doorways). Maintain accurate records to determine the effectiveness of trap placement and overall trapping success. Multiple catch traps should be checked fre-

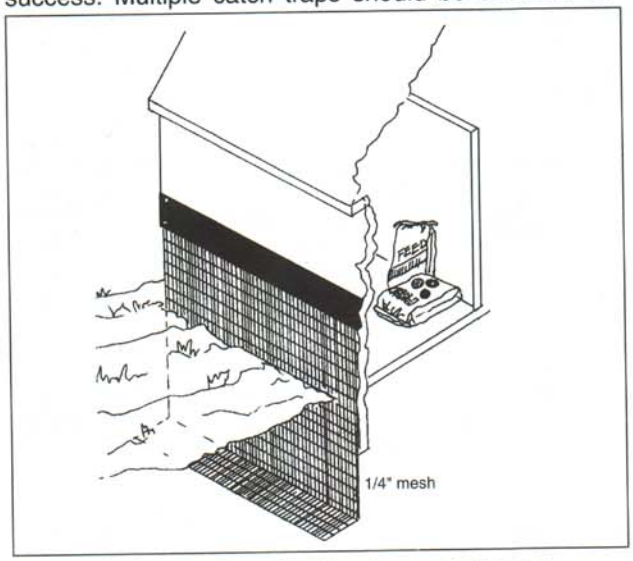

Figure 1. A curtain wall of hardware cloth can prevent rats from burrowing under concrete slabs or foundation walls.

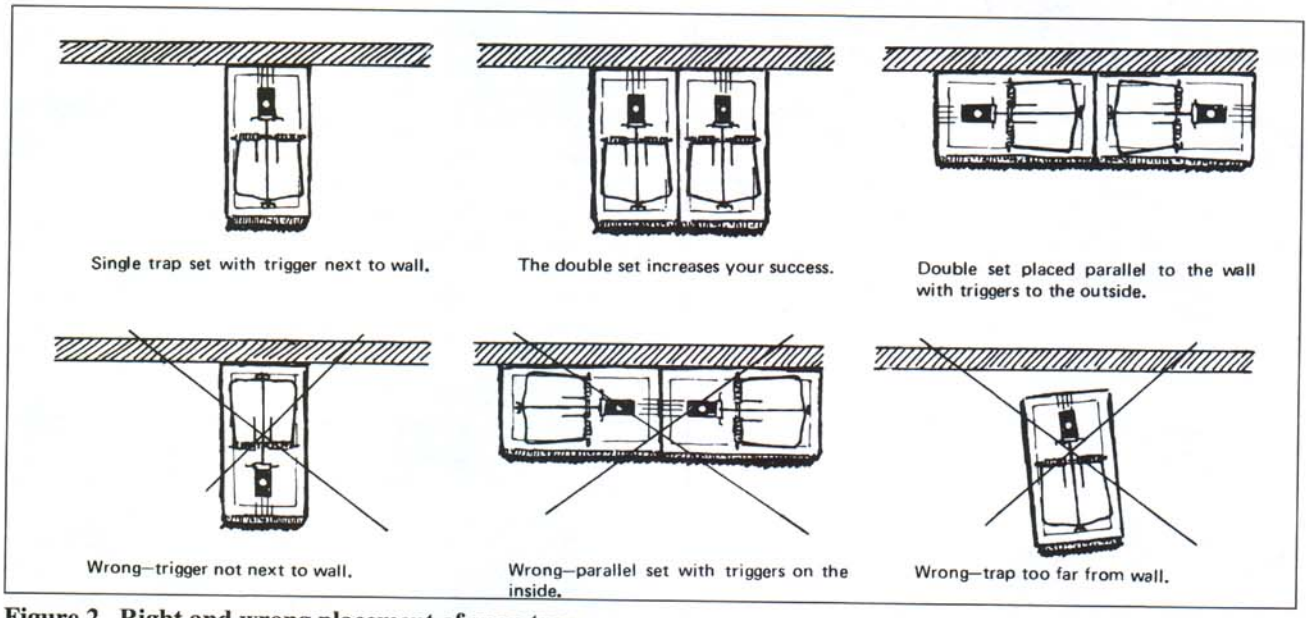

Figure 2. Right and wrong placement of snap traps.

quently to remove captured mice.

Glue boards are another type of rodent trap. They catch and hold rodents that attempt to cross them in much the same way flypaper catches flies. Glue boards are available where rodent baits and traps are sold, or can be ordered from pest control suppliers. Place glue boards along walls where rodents travel. Do not use them where children, pets, or desirable wildlife have access to them, because they stick tenaciously to any object coming in contact with them. Glue boards lose their effectiveness in dusty areas unless covered, and temperature extremes also may affect their tackiness. To protect the glue board from dust and from disturbance, place it inside a bait station, or install a special protective cover designed to fit over the glue board. The user can place the glue board in a cardboard or wooden box the size of a shoe box, with a hole cut in each end for the rodents to enter. This can be an aid in disposal of carcasses, although rats may be wary of the box and may not enter for several days. Glue boards are more effective for capturing mice than rats.

Using toxic baits (rodenticides). Rodenticides are pesticides designed to kill rodents. Both anticoagulant and non-anticoagulant rodenticides are available. Although a wide variety of ready-to-use baits are available, some experts in rodent control prefer to mix their own baits using rodenticide concentrates. In most situations, however, ready-to-use commercial baits are preferred because they have proven efficacy and do not require that the applicator handle the concentrated toxicant, which may be more hazardous.

Some non-anticoagulant rodenticides (Table 3) will give a quicker knockdown of a rodent population than anticoagulants, as they are effective with a single feeding and are relatively rapid in action. They may be preferred where rodents are abundant or where it is difficult to get them to accept a bait for several days in succession (as is necessary with some anticoagulants) because of competing food items.

The most common non-anticoagulant rodenticides are bromethalin and cholecalciferol. Bromethalin kills

Table 3. Non-anticoagulant rodenticides and some of their useful characteristics for controlling rats and mice in swine facilities.

Common name	Chemical name	Percent a.i.* in food bait	Mode of action	Time to death	Bait acceptance	Bait shyness	Human hazard	Swine hazard
Bromethalin (Assault®, Vengeance®)	*N*-methyl-2,4-dinitro-*N*-(2,4,6-tribromo-phenyl)-6-trifluoro-methyl) benzenamine	0.01	CNS** depression and paralysis	2-4 days	good	none reported	moderate	unknown
Cholecalciferol (Quintox®, Rampage®)	9,10-Seocholesta-5,7, 10(19)-trein-3 betaol	0.075	Mobilizes calcium resulting in death from hypercalcemia	3-4 days	fair-good	none reported	low-moderate	unknown
Zinc phosphide (Ridall Zinc®, ZP®)	zinc phosphide	1.0 - 2.0	Phosphine gas enters circulatory system; heart paralysis, gastrointestinal and liver damage	1/2-20 hrs.	fair	moderate-high	moderate	moderate

* active ingredient

**Central Nervous System

Table 4. Anticoagulant rodenticides for controlling rats and mice in swine facilities.

Common name	Chemical name	Percent active ingredient in used in food bait
Brodifacoum (Havoc® Talon®)	3-[3-[4'-bromo(1,1'-biphenyl)-4-yl]-1,2,3,4-tetrahydro-1-naphthalenyl]-4-hydroxy-2H-1-benzopyran-2-one	0.005
Bromadiolone (Maki®, Contrac®)	3-[3-[4'-bromo(1,1'-biphenyl)-4-yl]-3-hydroxy-1-phenylpropyl]-4-hydroxy-2H-1-benzopyran-2-one	0.005
Chlorophacinone (RoZol®)	2-[(p-chlorophenyl)phenylacetyl]-1,3-indandione	0.005
Difethialone (Generation®)	[(bromo-4'-[biphenyl-1-1']-yl-4)3-tetrahydro-1,2,3,4-napthyl-1]3-hydroxy-4,2H-1 benzo-thiopyran-2-one	0.0025
Diphacinone (Ramik®)	2-diphenylacetyl-1,3-indandione	0.005
Pindone (Pival®)	2-pivalyl-1,3-indandione	0.025
Warfarin	3-(α-acetonylbenzyl)-4-hydroxycoumarin	0.025

rodents by disrupting the energy production within the cells of the body. Eventually, this results in a decrease in nerve impulses, paralysis, and death. A single dose of bait is usually lethal within 2 to 4 days. Rodents stop feeding on bromethalin baits after they have consumed a lethal dose. Thus, only relatively small amounts of this bait need to be available.

Cholecalciferol is actually vitamin D_3. In massive doses this compound is toxic—especially to rodents, and because of their small size, rodents succumb to relatively small amounts. Cholecalciferol will act as a single-dose poison if a sufficient amount is consumed by a rodent in one feeding, but it will act as a multiple-dose poison if consumed in lesser amounts over several days.

Zinc phosphide has been used as a rodenticide for many years. It is a blackish powder with a distinctive garlic-like odor that is said to be attractive to rats and mice, but is generally unattractive to humans and pets. It is available in ready-to-use commercial baits. Use of zinc phosphide has declined because of the relatively more effective new generation anticoagulant and non-anticoagulant rodenticides. However, it is still an effective and useful material, and it can provide an economical and quick knock-down of a rodent population. Because "bait shyness" may develop following a sublethal ingestion of zinc phosphide, it is best not to use this active ingredient more than twice per year at a given location, and preferably only once. "Prebaiting" with untreated bait for several days before a zinc phosphide rodenticide is offered will increase bait acceptance, thereby increasing control success.

Because the modes of action of non-anticoagulants are completely different from that of the anticoagulants, they are effective against anticoagulant-resistant rodents. Non-anticoagulant rodenticides can be hazardous to humans, pets, or livestock if accidentally ingested, because they are more rapid in action and because first aid treatments are often less effective than with anticoagulants.

Anticoagulant rodenticides (Table 4) comprise about 90% of all baits used for rodent control. Anticoagulants cause death by internal bleeding, which occurs as the animal's blood loses its clotting ability and capillaries are destroyed. The active ingredients are used at very low levels, and bait shyness does not occur primarily because of their slow action. All anticoagulant rodenticides are relatively slow-acting and death usually occurs 3 to 7 days following the ingestion of a lethal amount. Most anticoagulant baits cause death only after they are eaten for several days. Brodifacoum, bromadiolone, and difethialone baits are exceptions, as these rodenticides can cause death following a single feeding, although the rodent may continue to feed for several days. All anticoagulants are considered to have good bait acceptance, low human hazard, and moderate- to-high hazard if directly ingested by swine.

When multiple-dose anticoagulant rodenticides are used, bait must be available continuously until all rodents stop feeding. This usually takes at least 2 weeks. Complete elimination of rodents is often possible with anticoagulant rodenticides. This is not usually achieved with non-anticoagulant rodenticides, and hence the anticoagulants are often used as a follow-up to other types of control.

Occasionally populations of rodents have been known to develop that are resistant to certain anticoagulants. This usually occurs following use of multiple-dose products continually for several years at one location. However, resistant rodents can be controlled by using a single-feeding anticoagulant (brodifacoum, bromadiolone, or difethialone), or by using one of the non-anticoagulants.

Bait selection and placement. Rodent baits are available in several forms. Grain baits in a loose meal or pelleted form are available in small plastic, cellophane, or paper packets. These sealed "place packs" keep bait fresh and permit easy placement of the baits into burrows, walls, or other locations. Rodents gnaw into the packets to feed on the bait. When baiting, check that packets have not been pushed out of burrows by rats, as this may expose bait to non-target animals.

Anticoagulant baits formulated into paraffin or wax blocks are useful, especially in damp locations, where loose grain baits would spoil quickly. As with place packs, avoid placing them where they could be reached and fed on by pigs.

Where ample feed is available to rodents, control can be improved by using baits prepared of highly-preferred foods. A particularly good bait material for house mice is canarygrass seed. In many situations, mice prefer such bait to hog feed or other cereal grains, if it is made readily available to them. Likewise, those anticoagulant baits that are lethal in a single feeding can be more effective in these situations.

Water or food items of high water content are often attractive to rodents at sites where water is scarce or

absent. Some anticoagulant concentrates can be dissolved in water to make a liquid bait. Even though mice require little water to survive, they will quickly accept available water baits. When water sources can be reduced or eliminated, liquid baits will provide excellent control of rats. Liquid baits also can supplement cereal baits, resulting in better control.

Proper placement of baits and the distance between them is very important. Baits must be located where rodents are living, as close to their shelter as is possible and closer than their normal food resources. For house mice, place baits no farther than 10 ft apart (preferably 6 ft to 8 ft). Since rats will travel farther to feed, baits can be spaced 25 ft to 50 ft apart. Whenever possible, however, place rat baits directly into, or very close to, rat burrows.

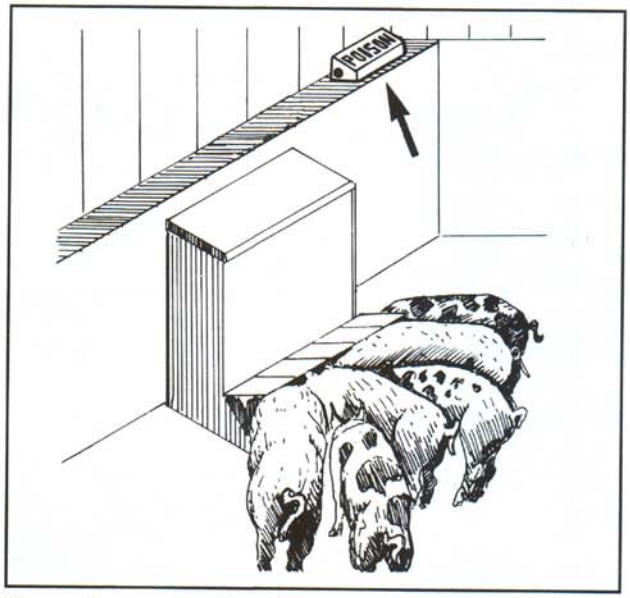

Figure 3. A rodent bait box attached to the top of a pen dividing wall in a swine indoor facility. When used in such locations, bait boxes must be securely fastened and out of pigs' reach.

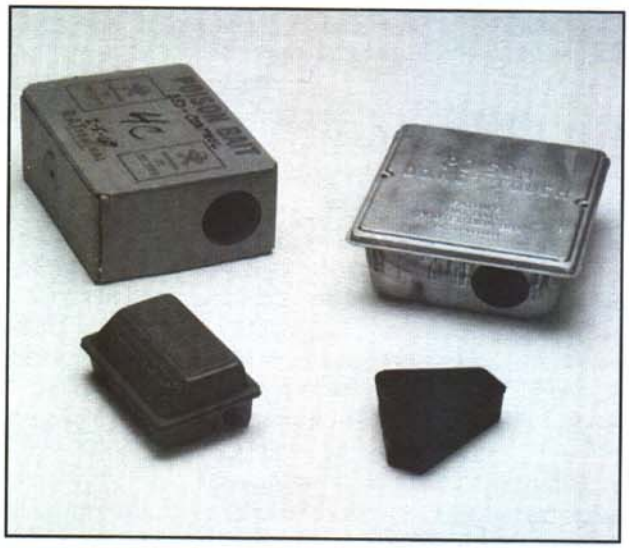

Figure 4. Commercially-available bait stations come in sizes for mice or rats, and include bait stations approved as "tamper-resistant" (right).

Bait boxes or stations provide a secluded feeding area, holding ample toxic bait for nearby rodents. Bait boxes protect the bait from weather and exclude pets and other non-target animals. They should be large enough to accommodate several rodents at one time and should have at least two rodent-sized openings (1 1/2 in. for mice, 2 1/2 in. for rats). Place bait boxes next to walls (with the openings close to the wall), or near burrows and in other places where rodents are active. Clearly label all bait boxes with "Rodent Bait—Do Not Touch" or other appropriate warnings as a safety precaution. To prevent bait boxes from being tipped over, fasten them to the floor or wall (Figure 3). Secure the lids to prevent unwanted access to the bait. Bait stations can be constructed from scrap lumber, or they can be purchased from suppliers. Examples of commercially available rat and mouse bait stations are shown in Figure 4. Some of the newer, "tamper-resistant" bait stations available from pest control supply distributors are more durable and will hold up inside swine housing structures better than light plastic or cardboard stations.

Fumigants. Fumigants are commonly used to control Norway rats in their burrows in outdoor situations. Compounds such as carbon monoxide (gas cartridges) and aluminum phosphide have been used to fumigate rat burrows. Fumigation of house mice is usually limited to situations where they occur inside structures such as grain bins or warehouses. *Caution! Fumigants are highly toxic to humans and other animals.* They must not be used in any situation that might expose people or domestic animals to the gases. Because of inherent potential hazards with fumigants, only licensed structural pest control operators should use fumigants in any situation involving buildings or other structural enclosures.

Maintaining control. Once "control" is achieved, some pork producers tend to let their guard down and not pay much attention to rodent control for a couple of months. Unfortunately, this habit leads to "undoing" all the work that it took to control the rodents initially. Keep in mind that a few rodents are likely to survive even the most thorough control effort. Also, rodents from nearby fields or structures may invade swine facilities at any time. These rodents will multiply quickly if not kept in check with an ongoing control program. Therefore, it is important to establish permanent bait stations in farm buildings and around their perimeter. Fresh anticoagulant bait in these stations will control invading rodents before breeding populations become established.

Rodent control should be a regular and continual part of a pork production operation. Take an hour or two each month, after control has been achieved, to check and refill bait stations and inspect facilities for fresh rodent activity. Mark it on the calendar.

Safety precautions. Some general safety precautions should be followed in addition to those appearing on product labels. Consider all rodenticides sufficiently toxic to cause death to pigs. Take care to keep baits out of the reach of domestic animals or non-target wildlife; place

baits where only rodents can access them. Rodenticides may present some hazard to predators or scavengers that feed on the carcasses of poisoned rodents. Remember that hogs will often feed on rodent carcasses. Therefore, pick up and properly dispose of any rodent carcasses that result from the use of toxic baits. Handle rodent carcasses with rubber gloves, long tongs, or several layers of newspaper. As an added safety precaution, keep dogs or cats confined or well-fed while initial baiting operations are in progress.

Label all bait containers and stations clearly with appropriate warnings, and keep unused bait in its original container. Store bait and concentrates in a locked cabinet and post appropriate warnings on the outside of cabinet doors. If baits are stored with other chemicals, be sure they are packaged in airtight containers to prevent absorption of foreign chemical odors that will reduce the baits' acceptance by rodents. Carefully follow label directions. Remove and destroy all uneaten bait at the end of the poisoning program. When using permanent bait stations, properly dispose of any old, spoiled, or contaminated baits.

Sound and electronic devices. Although rodents are easily frightened by strange or unfamiliar noises, they quickly grow accustomed to regularly repeated sounds and thus live in grain mills and factories with high sound levels. Ultrasonic sounds— those above the range of human hearing— have very limited if any use in rodent control because they are directional and do not penetrate behind objects. Also, they lose their intensity quickly with distance. There is no good evidence that sound of any type will drive established mice or rats from buildings.

Predators. Although cats, dogs, and other predators may kill rodents, they do not provide effective control in most circumstances. It is common to find rodents living in very close association with dogs and cats. Mice and rats may obtain much of their diet from the pet's dish or from what pets spill.

Summary

1. Eliminate or reduce the number of places rodents can use for shelter. Prevent clutter in and around buildings, and keep stored feed in rodent-proof facilities. Where practical, make structures rodent-proof. When rodents have no place to hide or nest, they cannot thrive.
2. If rodents or evidence of rodents are present, begin or increase control efforts. Use traps or rodenticides to reduce their numbers. Place baits or traps in areas where rodents are active, and maintain control efforts diligently until successful.
3. Once rodent numbers have been reduced, continue a regular program of control to keep rodent numbers to a minimum. Maintain permanent bait stations or traps to control invading rodents and to keep surviving rodents from multiplying.

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