

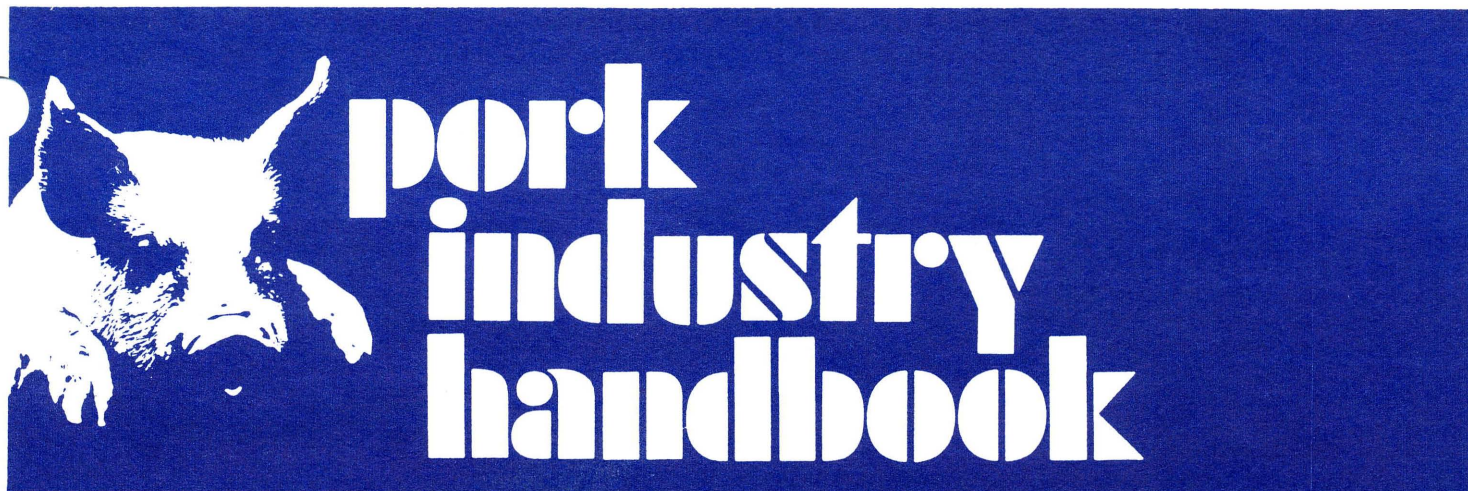
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Controlling Rats and Mice in Swine Facilities – Pork Industry Handbook  
Michigan State University Cooperative Extension Service  
Robert M. Timm; University of California; Rex E. Marsh, University of California-Davis; Robert M. Corrigan, Purdue University; Ken Holscher, Iowa State University  
Issued February 1992  
8 pages

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COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

## 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 may also be responsible for maintaining or spreading swine 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 non-native "commensal" rodents live under a variety of urban and rural conditions. They may thrive in and around farms and rural homes and in some situations 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 are susceptible to rodent damage. A rodent infestation can damage structures by thousands of dollars in a matter of months. Additionally, rodents may gnaw on electrical wiring causing equipment malfunction, power outages, and potentially dangerous 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 of the West. The roof rat primarily occupies the coastal areas of Washington, Oregon, and California, as well as a larger area along the Gulf and Atlantic coast states from Texas to Maryland. In general, the roof rat is considerably less important to the pork producer.

### Rodents and Swine Diseases

Rodents and other wildlife can be significant in the transmission of swine diseases. The actual occurrence of such diseases in rodents, and the degree to which they con-

tribute to disease problems on hog farms, is poorly 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 directly into a swine facility upon their entry. Rodents can spread or accelerate the spread of established 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 isolated sick pigs and then contaminate the food and water of healthy animals some several hundred feet away.

Additionally, rodents around farm buildings are a food source that may attract wild predatory animals such as foxes, coyotes, raccoons, and skunks, which in turn may contribute to disease problems. Rodents may also attract stray dogs and cats which can transmit still other diseases. An effective disease barrier system cannot be achieved or maintained without good rodent control.

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

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 disseminator.



## Recognizing Rodent Infestation

Droppings, tracks, burrows, pathways, and fresh gnawings, including rodent-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. Around swine facilities, insulated walls and ceilings are common nesting locations for rodents, especially mice. Rats utilize these areas and also burrow into the ground inside and outside of swine buildings. When present in relatively high numbers, these rodents 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 nondescript, brownish to greyish rodents with relatively large ears and small eyes. They weigh about  $\frac{1}{2}$  oz. An adult is about  $5\frac{1}{2}$ - $7\frac{1}{2}$  in. long including the 3- to 4-in. tail. Norway rats are large, robust animals whose fur color ranges from reddish to greyish brown on the back and sides and grey to yellow-white underneath. They are about 13-18 in. long including the 6- to  $8\frac{1}{2}$ -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 grey, with a grey to whitish underside. A roof rat, in contrast to the Norway rat, has a tail longer than its body 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. Rats require  $\frac{1}{2}$ -1 fl. oz. of water daily (unless feeding on moist or succulent foods), but house mice can survive for long periods without liquid.

Rats and mice have keen senses of taste, hearing, smell and touch. Roof rats, in particular, are excellent climbers and often live on the second story of two-story farm buildings if food is available. House mice and Norway rats will climb to reach food or shelter, and all three rodent 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) from the floor onto a flat surface.

These rodents have impressive capacities for reproduction, which makes it necessary to control them diligently and early, before they reach populations that cause significant damage. For example, in a single year a female house mouse may have 5-10 litters of usually 5 or 6 young each. Young are born 19-21 days after mating, and they reach reproductive maturity in 6-10 weeks. The life span of a mouse is usually 9-12 months. Norway and roof rats are only slightly less fecund, with individuals typically living 9-12 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

Effective control involves (1) sanitation, (2) rodent-proof construction, and (3) population reduction. The first two are useful as preventive measures. When a rodent infestation already exists, population reduction is almost

always necessary. Reduction techniques include trapping, poisoning, and fumigation.

**Sanitation.** Although good sanitation will seldom eliminate rodents, it will certainly 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 given to the premises; often this goes hand-in-hand with poor sanitation. Inadequate sanitation contributes to more serious rodent problems, but 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-foot weed-free perimeter around structures may make rodents feel more "exposed" and permits easier detection of rodent activity.

Because mice can survive in very small areas with limited food and shelter, it is almost impossible to eliminate them through sanitation alone, particularly on farms. Most buildings in which livestock feed is stored, handled, or used will support a thriving population of house mice if not mouse-proof. Store feeds in rodent-proof buildings, rooms, or containers whenever possible. Bins used for bulk feed should be kept rodent-proof. Stack sacked feed on pallets with adequate space left around and under stored articles to allow easy inspection for rodent sign and 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. Rodent-proof all places where feed is stored, processed, or used, if feasible.

The paired front (incisor) teeth of rats and mice curve slightly inward. This makes it difficult for them to gnaw into a flat, hard surface. However, when given a rough surface or an edge to bite into, they can quickly gnaw into most materials. By gnawing, rats can gain entry through any opening greater than  $\frac{1}{2}$  in. across. Mice can enter a building through any opening larger than  $\frac{1}{4}$  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 portland cement mortar, masonry or metal collars. Even a small unprotected opening can be an invitation to rodents. A common entry point for mice into buildings is the unprotected end of 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 using metal siding so these openings are not present.

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 building construction, it might not pay to make the infested building rodent-proof. In such instances, give more attention to other techniques of rodent control.

Rats can be discouraged from burrowing near building foundations by installing a strip of heavy gravel around their perimeter. Gravel should be at least 1 in. in diameter and laid in a band at least 2 ft. wide and 6 in. deep.



**Table 2. Recommended materials for rodent proofing.**

Material	Thickness	Remarks
Concrete	Minimum 2 in. Minimum 3¼ in.	If reinforced. If not reinforced.
Galvanized sheet metal	24 gauge or heavier	Perforated sheet metal grills should be 14 gauge.
Brick	3¾ in.	With joints filled with mortar.
Hardware cloth (wire mesh)	19 gauge ½ x ½ in. 24 gauge ¼ x ¼ in.	To exclude rats. To exclude mice.
Aluminum	22 gauge 20 gauge 18 gauge	For frames and flashing. For kick plates. For guards.

**Trapping.** Trapping is an effective way to control rodents. House mice are relatively easy to trap, but trapping rats requires more skill and labor. Trapping is the method to try first where rodents are few, but it may be too time-consuming in severe infestations. Trapping has several advantages: (1) it does not rely on potentially hazardous rodenticides; (2) it permits the user to view his success; and (3) it allows for disposal of the rodent carcasses, thereby eliminating dead animal odors, which may occur when poisoning is done within buildings.

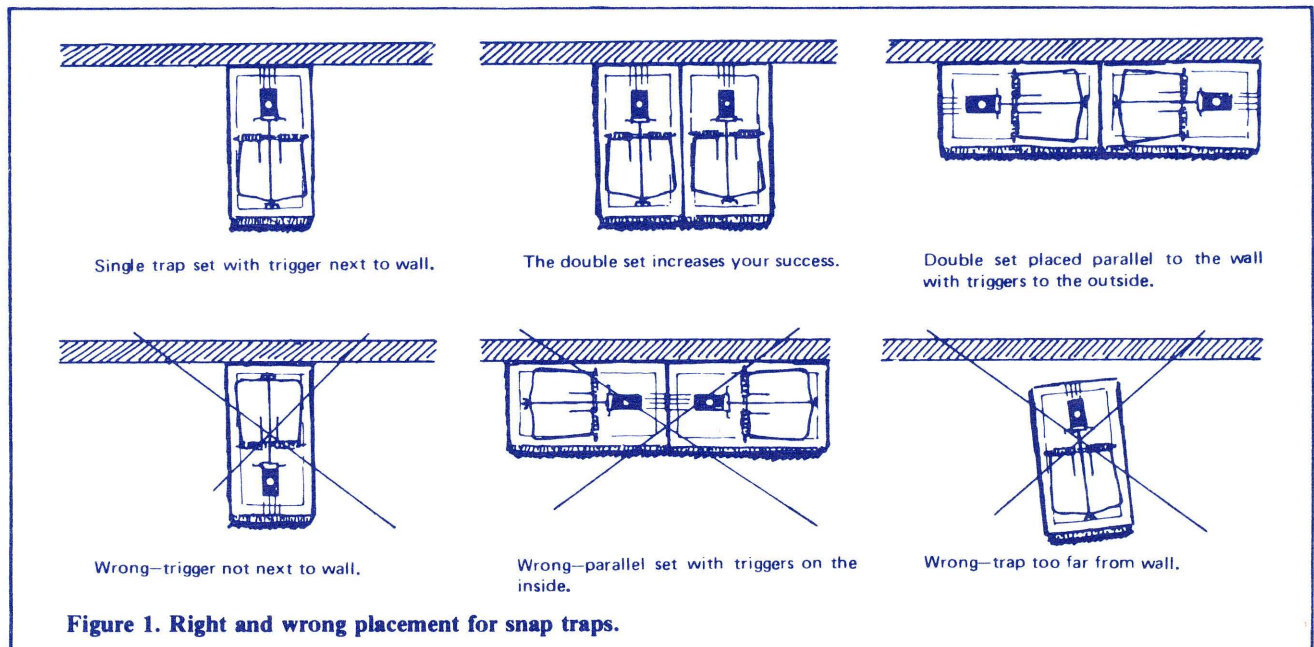
The simple, inexpensive wood-based snap trap is effective. Recently new and improved snap traps for rats and mice have become available. These traps, made of sturdy plastic or metal, are easier to set and effective when used correctly. Snap traps are available through farm supply or hardware stores and from pest control suppliers. Bait the traps with a mixture of peanut butter and rolled oats or with a small piece of bacon tied securely to the trigger. Set them so that the trigger is sensitive and will spring easily. Leaving traps baited but unset until the bait has been taken at least once reduces the chance of creating trap-shy rodents. 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 flour or fine sand 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 1). Newer snap traps have enlarged triggers, but bait pans on older traps can be easily enlarged so that rodents are more likely to trigger the trap when traveling over it. When set correctly, it is possible to catch rodents that are not even attracted to the bait.

Use enough traps to make the campaign short and decisive. Mice, in particular, seldom venture far from their shelter and food supply, so space snap traps no more than 10 feet apart in areas where mice are active. When using snap traps, it may be best to trap intensively for 2 or 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 seem especially persistent and in areas of the building where mice may be gaining regular access (for example, on both sides of doorways).

An alternative to traps are glue boards, which catch and hold rodents attempting to cross them in much the same way flypaper catches flies. Place glue boards along walls where rodents travel. Because they stick tenaciously to any object coming in contact with them, do not use them where children, pets or desirable wildlife have access to them. Glue boards lose their effectiveness in dusty areas unless covered, and extremes of temperature also may





affect their tackiness. The glue board can be placed inside a suitable cardboard box with appropriate holes cut for the rodents to enter. This also aids in disposal of carcasses. Glue boards are generally more effective for capturing mice than rats.

**Using Poison Baits (Rodenticides).** Both anticoagulant and non-anticoagulant rodenticides (rodent poisons) are available. Although ready-to-use baits come in a wide variety of types, some persons highly knowledgeable in rodent control prefer to mix their own baits using rodenticide concentrates. In most situations, ready-to-use commercial baits are preferred because they have proven efficacy and do not require that the applicator handle the concentrated toxicant, which is 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 may be necessary with some anticoagulants) because of competing food items.

With most non-anticoagulant rodenticides, "prebaiting" with poison-free bait for several days before the rodenticide is offered will increase bait acceptance, thereby increasing control success. Because "bait shyness" or "poison shyness" may develop following a sublethal ingestion of some single-dose rodenticides such as zinc phosphide or red squill, it is best not to use these more than twice a year at a given location, and preferably only once. Because non-anticoagulant rodenticides are generally more rapid in action and because first aid and antidotes are often less effective, some of these materials are more hazardous to humans, pets, or livestock if accidentally ingested.

Anticoagulant rodenticides (Table 4) 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.

Most anticoagulant baits cause death only after they are eaten for several days. Brodifacoum and bromadiolone baits are exceptions, as these rodenticides can cause death following a single feeding, although the rodent may continue to feed for several days. All anticoagulant rodenticides are relatively slow-acting, and death usually occurs 3 to 5 days following the ingestion of a lethal amount.

When multiple-dose anticoagulant rodenticides are used, bait must be available continuously until all rodents stop feeding. This usually takes at least two weeks. Complete elimination of rodents is often possible with anticoagulant rodenticides. This is more rarely the case with non-anticoagulant rodenticides and hence the anticoagulants are often used as a followup to other types of control.

Occasionally populations of rodents develop which are resistant to the multiple-dose anticoagulants. This usually occurs following long, continual use of these products. Such rodents can be controlled by using the single-dose anticoagulants brodifacoum or bromadiolone or by using one of the non-anticoagulants.

**Bait Selection and Placement.** Rodent baits are available in several forms. Use tamper-resistant bait boxes in all areas accessible to domestic animals and wildlife. 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 packet to feed on the bait.

Anticoagulant baits formulated into paraffin blocks are useful in damp locations where loose grain baits would spoil quickly. Take care to avoid placing them in locations where they could be reached and fed on by pigs.

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. Where ample feed is available to rodents, control can be improved by using baits prepared of highly-preferred foods. Likewise, those anticoagulant baits, which are lethal in a single feeding, are more effective in these situations.

**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	Rodents controlled		
									House mice	Norway rats	Roof rats
bromethalin (Assault® Vengeance®)	N-methyl-2,4-dinitro-N-(2,4,6-tribromophenyl)-6-trifluoromethyl) benzenamine	0.01	CNS depression and paralysis	2-4 days	good	none reported	mod	unk	yes	yes	yes
cholecalciferol (Quintox® Rampage®)	9,10-Secholesta-5,7,10(19)-trein-3-betaol	0.075	Mobilizes calcium resulting in death from hypercalcemia	3-4 days	fair-good	none reported	low-mod	unk	yes	yes	yes
zinc phosphide	zinc phosphide	1.0-2	Phosphine gas enters circulatory system; heart paralysis, gastrointestinal, and liver damage	½-20 hrs.	fair	mod-high	mod	mod	yes	yes	yes

\* Active ingredient.

\*\* Principal active ingredient.

NOTE: Rodenticides such as ANTU, arsenic trioxide, and phosphorus are registered and available in some states, although they are rarely used today because of their limited availability and low efficacy in most situations. Both arsenic and phosphorus are quite toxic to swine and in some countries have been used to control feral pigs.



**Table 4. Anticoagulant rodenticides for controlling rats and mice in swine facilities. All anticoagulants have the same mode of action and all have a delayed time to death, although some act slightly faster than others. All anticoagulants are effective against house mice, Norway rats, and roof rats. They all are considered to have good bait acceptance, no bait shyness, low human hazard, and moderate-to-high hazard to swine.**

Common name	Chemical name	Percent a.i.* 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® Contra®)	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-[( <i>p</i> -chlorophenyl) phenylacetyl]-1,3-indandione	0.005
diphacinone (Ramik®)	2-diphenylacetyl-1,3-indandione	0.005
coumafuryl (Fumarin®)	3-( $\alpha$ -acetonylfurfuryl)-4-hydroxycoumarin	0.025
pindone (Pival®)	2-pivalyl-1,3-indandione	0.025
Valone®	2-isovaleryl-1,3-indandione	0.055
warfarin	3-( $\alpha$ -acetonylbenzyl)-4-hydroxycoumarin	0.025

\* Active ingredient.

\*\* Effective on anticoagulant (warfarin)-resistant rats and mice.

Where water is scarce or absent, water or food items of high water content are often preferred to dry baits. Some anticoagulant rodenticide concentrates are available to 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 the water sources of rats can be reduced or eliminated, liquid baits will provide excellent control. Liquid baits can also supplement cereal baits, resulting in better control.

Important! Proper placement of baits and the distance between placements is important for successful control. Baits or traps must be located where rodents are living. Place baits or traps as close to their shelter as the rodent's alternative food resources. For house mice, space bait placements no farther than 10 ft. apart (preferably 6-8 ft.) in areas where mice are present. Since rats will travel farther to feed, baits can be spaced 25-50 ft. apart. But whenever possible, place rat baits directly into, or very close to, rat burrows.

Bait boxes or stations provide a secluded feeding area, holding ample multiple-dose, anticoagulant bait for the rodents in that area. Bait boxes protect the bait from weather and exclude pets and other nontarget animals. Bait stations should be large enough to accommodate several rodents at one time and should have at least two rodent-size openings (1½ in. for mice; 2½ 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 2). Where young children, pets, or livestock may be present, secure the lids to prevent unwanted access to the bait. Two designs for homemade bait stations are shown in Figure 3. Some of the newer, "tamper-resistant" bait stations available from pest control supply distributors are more durable and will hold up inside swine 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 people and animals, and must not be used in any situation that might expose people or domestic animals to the gases. Because of inherent potential hazards with fumigants such as chloropicrin and methyl bromide, 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 it took to control the rodents initially. Keep in mind that a few rodents are likely to survive even the most thorough control effort. And, 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 buildings and around their perimeters. 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. Make it a point to put aside an hour or two each month after control has been achieved to check and refill bait stations and inspect facilities for fresh rodent signs. Mark it on the calendar.

**Safety Precautions.** Certain general safety precautions should be followed in addition to those appearing on the labels of products. Consider all rodenticides dangerous enough to cause death to pigs, and place baits where only rodents can get to them. All known rodenticides present some degree of hazard to animals besides rodents. The anticoagulants and some non-anticoagulant rodenticides may present some hazard to predators or scavengers which



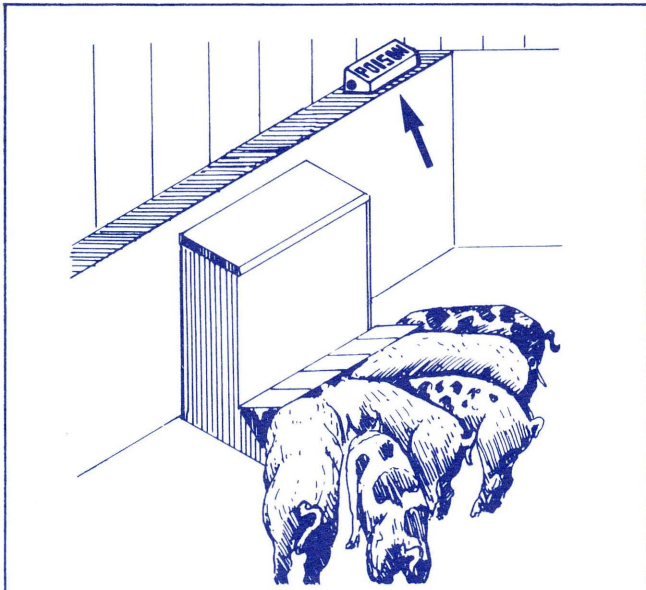


Figure 2. A rodent bait box attached to the top of a pen dividing wall in a swine facility. When used in such locations, bait boxes must be securely fastened and out of pigs' reach.

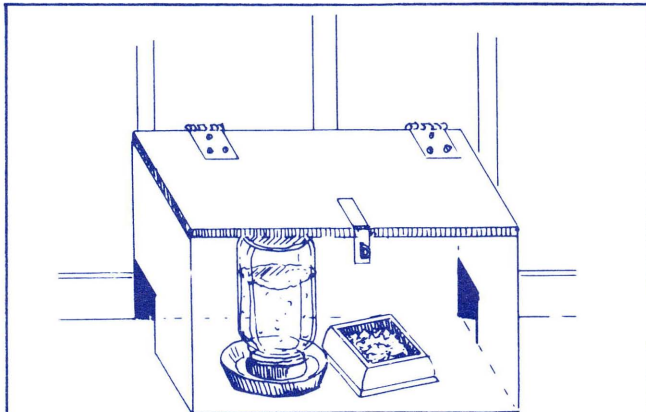


Figure 3 (a). A homemade rodent bait station can contain liquid as well as solid (cereal) baits.

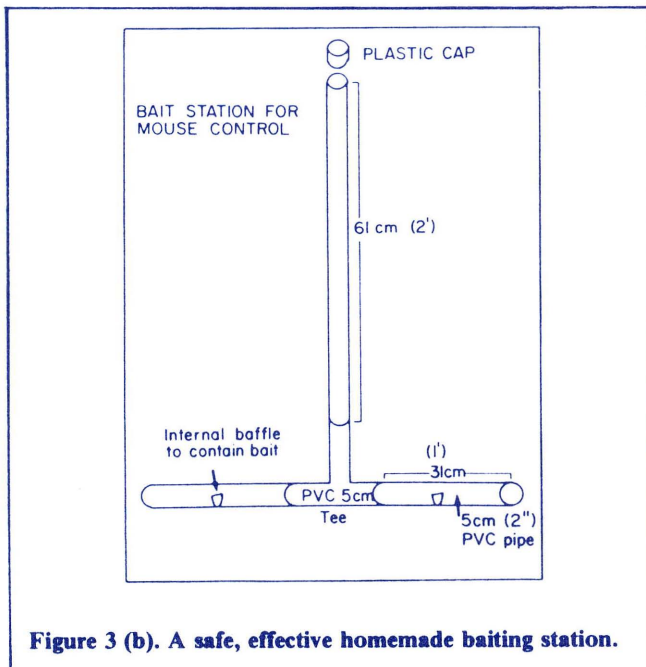


Figure 3 (b). A safe, effective homemade baiting station.

feed on the carcasses of poisoned rodents. Therefore, take care to keep baits out of the reach of domestic animals or nontarget wildlife. Remember that hogs will often feed on rodent carcasses. Handle rodent carcasses with rubber gloves, long tongs, or newspaper, and bury or incinerate all dead rodents. As an added safety precaution, keep dogs or cats confined or well-fed while 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 out of the reach of children or animals, and post appropriate warnings on the outside of cabinet doors. If baits are stored with other chemicals, be sure that they are packaged in airtight containers to prevent absorption of foreign chemical odors, which will reduce the bait's effectiveness. Carefully follow label directions on all rodenticides. Except when using permanent bait stations, remove and destroy all uneaten bait at the end of the poisoning program.

**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 use in rodent control because they are directional and do not penetrate behind objects. Also, they lose their intensity quickly with distance. There is little 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 give 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. Try to eliminate or reduce the number of places rodents can use for shelter. Prevent clutter in and around buildings and structures, 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 rodent signs are present, begin 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.

To simplify information, trade names of some products have been used. No endorsement of named products is intended, nor is criticism implied to similar products not mentioned.



Pesticides must be registered with the U.S. Environmental Protection Agency and the Michigan Department of Agriculture before they can be used legally in Michigan. This bulletin suggests using pesticides to manage pests. Purchase only those pesticide products that are labeled for the site you wish to use it on and the pest you wish to control. Remember that the pesticide label is a legal document on pesticide use. Read the label carefully and closely follow all instructions and limitations. The use of a pesticide in a manner not consistent with the label can lead to injury of crops, humans, animals, and the environment, and also can lead to civil fines. Pesticides are good management tools to control pests, but only when they are used in an effective, economical, and environmentally sound manner.

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# PESTICIDE EMERGENCY INFORMATION

(Please post in an appropriate place)

For any type of emergency involving a pesticide, the following Emergency Information Centers should be contacted immediately for assistance.

**Current as of March 1991**



## HUMAN PESTICIDE POISONING

### *Eastern Half of Michigan*

within the Detroit city proper:

**\*(313) 745-5711**

within the 313 area code:

**\*1-800-462-6642**

#### **Poison Control Center**

Children's Hospital of Michigan  
3901 Beaubien  
Detroit, MI 48201

### *Western Half of Michigan*

within the Grand Rapids city proper:

**\*(616) 774-7854**

Statewide

**\*1-800-632-2727**

#### **Blodgett Regional Poison Center**

Blodgett Memorial Medical Center  
1840 Wealthy, S.E.  
Grand Rapids, MI 49506

### *Upper Peninsula of Michigan*

within the Marquette city proper:

**\*(906) 225-3497**

Upper Peninsula only:

**\*1-800-562-9781**

#### **U.P. Poison Control Center**

Marquette General Hospital  
420 West Magnetic Street  
Marquette, MI 48955

Cooperative Extension Service  
Michigan State University  
**Extension Bulletin AM-37**

#### **PESTICIDE EMERGENCY INFORMATION:**

Revised by Larry G. Olsen,  
*Pesticide Education Coordinator,*  
*Michigan State University.*  
Current as of March 1991  
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## SPECIAL PESTICIDE EMERGENCIES

### **Animal Poisoning**

Your personal veterinarian:

*and/or*

Animal Health Diagnostic Laboratory (Toxicol-  
ogy), Michigan State University:  
**(517) 355-0281**

### **Pesticide Fire**

Local fire department:

*and*

Fire Marshal Division, Michigan State Police:  
**(517) 322-1924**

### **Traffic Accident**

Local police department or sheriff's department:

*and*

Operations Division, Michigan State Police:  
**\*(517) 336-6605**

### **Environmental Pollution**

Pollution Emergency Alerting System (PEAS),  
Michigan Department of Natural Resources:  
**\*1-800-292-4706**  
*(Toll free for environmental emergencies)*

### **For information on pesticide disposal and local pick-up days:**

Michigan Department of Natural Resources,  
Waste Management Division:  
**(517) 373-2730**

**\* Telephone Number Operated 24 Hours**



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