

Rodent Control: Beyond the Bait Station

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The only certainties in life are death and taxes. If you are a pork producer, you can add market fluctuations and rodents to that list. Controlling rodent and pest populations is a critical part of herd health management. As a swine veterinarian in the Midwest, I've encountered all levels of pest control, ranging from thorough to non-existent. A common misconception in the field is "I put bait out from time-to-time, so I'm controlling rodents". Without proper site management and bait selection/placement, routine rodent bait placement will do little to impede infestations. When developing a control strategy, keep these key factors in mind.

Why Control Rodents and Pests?

Like all animals, rodents are constantly on the lookout for food and shelter. Livestock facilities are a great source of both. However, rodents pose a risk to livestock and facilities. Swine producers are faced with several diseases that can be carried by rodents:

- Salmonella
- Seneca Valley Virus
- Swine dysentery
- Erysipelas
- Leptospira

When swine facilities that do not share common management or health status are in close proximity (common in the upper Midwest), rodents serve as a mechanical vector between sites for additional pathogens including Porcine Epidemic Diarrhea virus. In addition to disease transmission, rodents are a destructive force on livestock facilities. A common observation on facilities with poor control is damage to curtains, electrical components, and insulation.

Prevent Entry Vs. Control Infestation

"An ounce of prevention is worth a pound of cure". That may have a literal interpretation when it comes to rodenticide disappearance in a heavy infestation vs. routine exterior baiting. Start by keeping rodents out.

- **Get rid of harborage:** Building materials, shipping pallets, old feeders/gating are a common site around some facilities. This provides ideal shelter for rodents. (Figure 1)

- **Clean up feed spills:** Readily available feed spills are an open invitation for pests. (Figure 2)
- **Maintain sterile zone around perimeter of buildings:** maintain a rock barrier of 1-3" diameter rock in a 3ft wide area around all exterior walls to discourage rodent burrowing and weed growth. Use herbicide to kill any weed growth in the sterile zone.
- **Mowing:** grass should be mowed to a height of 3-4" within 50ft of any buildings. Be sure to mow regularly to prevent large accumulation of clippings and never discharge clippings toward the exterior walls, they can provide a nesting area for rodents.
- **Bait stations:** Fresh bait should be maintained in rain-proof bait stations placed no more than 50ft apart on the exterior walls. Maintain a rodent baiting log to ensure monthly checks, more often if bait is depleted. (Figure 3)
- **Seal gaps:** Fill cracks in walls or concrete with steel wool and/or expansion foam.



Figure 1. Harborage around sites creates an ideal living area for rodents.

Control Inside Buildings

Preventing rodent entry is rarely 100% effective. Controlling rodents that make it past the initial defense is critical for preventing widespread infestations. Many of the principles for internal control are like external prevention, with a few additions.

- **Feed spills, clutter, and sanitation:** Keeping storage areas clean and organized, preventing feed spills, and regular washing/sanitation of hallways and work areas are key to deterring rodent traffic.
- **Watch for traffic:** If droppings or grease marks are observed, place bait in the path of rodent traffic. This may be along walls, curtain sills, water/feed lines, or inside walls.
- **Inspect attics regularly:** Infested attics are a constant reservoir of rodent populations. Any rodents eliminated below attic level will quickly be replenished by others from an infested attic. Look for burrows in cellulose insulation or droppings along trusses or ledges. Place bait every 20-50 feet in attics.
- **NEVER ALLOW PIGS TO CONSUME BAIT** – There is no established slaughter withdrawal for rodenticides. Any animal that consumes rodent bait should not be allowed to enter the food supply. This means that carcasses suspected of rodenticide ingestion must be composted or incinerated, not rendered. Keep bait in a closed bait station or secured in a location that cannot be accessed by pigs.
- **Take advantage of an empty barn:** between turns is the best time to reduce rodent populations. After emptying a barn/room, be sure all feeders are empty and feed spills are cleaned up. After washing, place rodent blocks or packs throughout the room and check every day. Keep bait available for the entire time the room is empty yet remove all bait that can be accessed by pigs prior to refilling.

Not All Bait is Created Equal

An important consideration of rodent control is knowing which rodenticide to use for each application. Let's start with the most common forms of bait:

	Advantages	Disadvantages	Best Application
Wax block	Durable, easy to load in bait stations	Unpalatable, may not be eaten in presence of feed	Mice, exterior bait stations, secured to feed/water lines
Soft bait	Highly palatable, will still be consumed in presence of feed	Not as weather/moisture resistant as wax blocks	Rats and Mice, Heavy infestations where feed is present, covered bait stations
Pellet/place pack	Can be poured into burrows, will remain fresh until package is chewed through	Mice may hoard or scatter pellets, difficult to restrict from domestic animal access	Rats, attics, difficult to access spaces



Figure 2. Feed spills are a common attractant for pests.



Figure 3. A properly maintained bait station placed in the sterile zone around a building.

Choosing the best active ingredient is important to consider for each application as well. Below is a table of commonly used rodenticides for agriculture applications.

Active Ingredient	Mode of Action	Advantages	Disadvantages
Brodifacoum	Anticoagulant	Single feeding, highly toxic	4-5 days from ingestion to death, may consume more bait
Difethialone	Anticoagulant	Single feeding, effective against anticoagulant resistant species	Greater knock-down time compared to Bromethalin
Bromadiolone	Anticoagulant	Single feeding, minimal resistance	Less toxic than Brodifacoum
Bromethalin	Neurotoxic	Single feeding, fast knock down, less bait consumption	Possible bait aversion, highly toxic to pets – no antidote for lethal dose
Cholecalciferol	Calcium metabolism interruption	Intake ceases when lethal dose ingested	Requires multiple feedings

When combating heavy infestations, baits with active ingredients like Bromethalin are effective, providing a fast knock down with minimal ingestion of bait, yet are ill-suited for long term control due to being unpalatable. Anticoagulant baits such as Brodifacoum are highly effective and well suited for routine control where heavy infestations are not present.

Summary

Rodent control is important to protect your pigs and facilities. Selecting the right bait for the right application and placing in an ideal location will greatly increase the success of a control program. Work with your veterinarian to help evaluate your farm's needs and develop a plan best suited for your operation.



Dr. Graham is a Swine Veterinary Consultant with The Swine Vet Center. He is originally from Cherokee, Iowa, where he spent his early years on his family's cattle/hog/crop farm. He received a BS in Agriculture, majoring in Animal Science from South Dakota State University in 2010. He completed his DVM and

MS in Veterinary Preventive Medicine in 2014 at Iowa State University. In May 2014, he joined The Maschhoffs as a Herd Veterinarian, and later as a Director of Health and Production for the Great Plains Region based in Western Iowa. In November of 2017, Dr. Graham joined the consulting team at The Swine Vet Center. Dr. Graham currently resides near Carroll, IA, with his wife, Sasha, and their two daughters.

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