

Rodent Control on Small Poultry Farms

Mice and rats are nuisance animals that typically can be found anywhere that poultry are grown. These rodents can spread disease and cause structural damage to your facilities, resulting in economic losses. Rodents are known to carry up to 45 different diseases including leptospirosis, Salmonellosis, fowl pox and erysipelas.

Preventative measures, along with traps and rodenticides, can lessen the likelihood of rodents becoming a problem. If rodents are in and around your poultry operation, use a safe and aggressive rodenticide and trapping program to eliminate them.

While there are several different types of rodents that can cause problems on farms, the two most common are House mice (*Mus musculus*) and Norway or Brown rats (*Rattus norvegicus*).

House mice can vary in color from gray to brown, ranging from 5 ½ to 7 inches long, and weigh up to ½ ounce. Their droppings tend to be small and look like black grains of rice (figure 1).

Mice can live from 5 to 12 months and can start breeding at around 50 days of age. Additionally, they have a gestational period of 19-21 days, and they can begin breeding 14-24 hours after giving birth. This ability to breed at a young age, coupled with a short gestational period can result in mice having from 5 to 10 litters in a year. With an

average litter size of six young, a single mother can produce as many as 60 offspring in a year.

Norway rats have thicker fur that can range from red to brown-gray with lighter fur on the sides. They are 12 to 18 inches long and weigh around 10 to 16 ounces. Rat droppings are bigger (¾ of an inch), rounded and bean sized.

Rats can breed as young as 3 to 4 months of age and can continue to breed until they are 18 months of age. The gestation period is 21-25 days and the young are weaned three weeks after they are born. After weaning, the females can breed again one day later. Rats can have 4 to 6 litters each year and average nine young per litter. Therefore, under ideal conditions, up to 50 young may be weaned each year.

Figure 1. **Mice droppings are about the size of grains of rice**



Photo by Jon Moyle

Preventing a Rodent Problem is Always Better than Trying to Fix One

In order to survive, rodents need food, water and shelter. Use the following ideas to help eliminate these three things and minimize rodent intrusion:

- Clean up all spilled feed (make sure feeders are adjusted properly to prevent feed waste and spills);
- Store feed in aluminum cans with lids so that rodents can't access them;
- Keep grass short (rodents don't like to cross open areas without cover);
- Clean up your farm and remove all debris that can provide shelter;
- Use nipple waterers to make it difficult for rodents to get water;
- Use rodent-proof materials that are hard for rodents to gnaw through such as concrete, galvanized steel, brick and wire mesh.

Even the best preventive measures may not completely eliminate a rodent problem. Therefore, a grower needs to be on the lookout for signs of rodent activity.

Identify Signs of Rodent Activity by Looking Carefully around the Coop and Other Areas Where Birds Spend Time

A regular cleaning routine will help you detect signs of rodents more easily. Some common signs to look for are:

- Droppings;
- Gnawing or chewing marks on feeders or buildings;
- Holes around the coops;
- Strong ammonia smells; and
- Accumulation of leaves, paper, or other things that can be considered nesting material.

The best time to check for problems is to look for rodents at night using a flashlight. Looking for rodents at night will also help determine the degree of infestation, and identify effective areas to place traps.

If There are Rodents on Your Farm, You Need to Determine How to Control Them

Traps and rodenticides are two types of commonly used rodent control. It is important to remember that traps and the bait stations need to be sized for the targeted rodent. In determining how to control rodents, you will also need to consider children, pets, and or wildlife that might come in contact with traps or bait.

Each Type of Trap Works Differently

Snap traps, multiple capture traps, electronic mouse traps and glue boards are among the types of traps available. Each works differently and has its own pros and cons, depending on where it is going to be used.

Snap traps and glue boards are relatively low cost and are typically used when dealing with small numbers of mice or in combination with baiting. These traps are easy to find at hardware stores and at most grocery stores. The glue traps are disposable while snap traps can be reused multiple times. Snap traps and glue boards should not be set where pets, children, or free-range poultry can come in contact with them.

For larger infestations, multiple- capture traps, such as a Tin Cat™, can be used to catch large numbers of live mice. This method is preferred by people who find the thought of killing rodents unacceptable. Multiple-capture traps do not kill the mice; rather, they are caught and can be released at a different location. If you choose to capture and release mice, relocate them many miles from your farm. Also, do not release rodents near any other

occupied dwellings or farms to avoid creating problems for others. Another method used to capture large infestations are Electronic Mouse Traps. These traps are available for both rats and mice. They emit a high voltage shock that kills the rodent instantly and requires no bait. They can kill up to 50 mice using a single set of batteries.

Bait Stations Protect Bait and Prevent Access

Bait stations are simple containers that protect the bait from getting wet and help prevent access from children, pets, livestock (including free-range poultry), and untargeted wildlife. They can be acquired from any pest control supplier, hardware store, feed stores or they can be handmade (figure 2).

Figure 2. Commercial bait traps are available at hardware stores, feed stores or pest control suppliers



The key to using bait stations is to place them in locations where rodents are likely to encounter them. Rodents prefer to run along the edges of buildings or structures so the bait station openings should be placed along the rodent's path.

All bait stations need to be checked regularly (weekly is recommended) to see if more bait is needed.

Homemade Bait Traps Are Easy to Make and Effective

You can make your own bait station using PVC pipe (or other plastic pipe) with a diameter ranging from

1.5 to 4 inches--smaller sizes for mice and larger sizes for rats. To construct a bait station you will need the following supplies:

- A section of PVC pipe (it does not have to be a full 8 feet, shorter lengths can be used)
- 1 PVC cap
- 1 PVC tee junction
- 2 aluminum pipe straps to fit the size pipe you are using
- PVC primer and glue
- Screws
- Drill

Cut the PVC into three lengths, (any length between 10 in. to 24 in. will work) it is not necessary that all three pieces are the same length. The flat section of the PVC tee should be against the ground, making the finished shape of the bait station look like an upside down capital letter T (see figure 3). One PVC section should be glued into the top of the tee. The other two sections should be glued to the sides of the tee. Allow the glue to dry for several hours.

Figure 1. You can make a bait station from PVC pipe



Photo courtesy of Jennifer Rhodes

Move the PVC pipe bait station to an area known to be frequented by rodents and place the station along the edge of a wall so that a rodent running along the wall will pass through the PVC pipe and tee junction to reach bait. The two aluminum pipe

straps and screws can be used to affix the station to the wall using the drill. Drop your preferred bait down the pipe standing up so that it lands in the tee junction and place the cap on the top to keep water out.

Another option is to place a stiff wire that reaches from the cap down into the tee junction. Bend the wire 90 degrees to one side at the end down in the tee junction. Thread several blocks of rodent bait onto the wire (the bend in the wire should keep them from falling off). Many bait blocks have holes in them just for this purpose. The rodents will eat the bait but will be unable to remove the bait from the station, helping to reduce the risk of accidental poisoning of non-target animals.

It is important to rotate the type of rodenticides that you use in order to prevent the rodents from developing resistance to them.

Safety First when Using Rodenticides

When using rodenticides, make sure to place them where pets, children, wildlife and livestock (including free-range fowl) cannot come in contact with them. Keep a copy of the kind of poison you are using and what to do if there is an accidental poisoning. Additionally, make sure the phone number for poison control is easily located in case you ever need to use it. Be sure baits are placed in bait stations, and not outside of them where non-target animals can access them, since you may be liable for damages if you fail to do so.

Wear disposable gloves when working with baits and wash hands thoroughly when done. If you should accidentally touch rodenticides while baiting stations, wash your hands immediately!

There are two types of rodenticides: anticoagulants and acute poisons. Single- and multi-dose anticoagulants cause blood thinning, resulting in internal bleeding. The most commonly used single-dose anticoagulants are Bromadiolone and Difethialone. Warfarin, Diphacinone and Chlorthalidone must be consumed multiple times over the course of several days. Table 1 summarizes the most common rodenticides used for population control.

Rodents react differently to acute poisons than anticoagulants. The most commonly used acute poison is Bromethalin, which affects the central nervous system. Bromethalin disturbs energy production in cells resulting in paralysis and death. Cholecalciferol, which is vitamin D3, is another popular acute poison. Cholecalciferol disrupts the body's calcium balance, increasing calcium levels in the blood. As rodents eat multiple doses of the poison, it affects the central nervous systems and results in paralysis.

Final Thoughts

Good rodent control can help improve the health and well-being of your poultry. While some rodents will almost always be present where poultry are being produced, effective managers will use preventive measures along with traps and rodenticides to control their population. When developing a rodent control program, make sure that it does not harm children and non-targeted animals.

Note: The use of commercial names does not represent an endorsement by the authors or the University of Maryland Extension.

Table 1. Common rodenticides are anticoagulants or acute poisons*

| Rodenticide | Common Name | Type | Number of Feedings Needed |
|--------------------|---|---------------|----------------------------------|
| Warfarin | Ferret, Contrax | Anticoagulant | Multiple |
| Diphacinone | Ramik, Green, Contrax-D, Ditrac, Trap-n-a-sak | Anticoagulant | Multiple |
| Chlorphacinone | Rozol | Anticoagulant | Multiple |
| Bromadiolone | Contrac, Boothill, Hawk, Just one Bite, Maki | Anticoagulant | Single |
| Difethialone | Generation | Anticoagulant | Single |
| Bromethalin | Assault | Acute Poison | Single |
| Cholecalciferol | Rampage | Acute Poison | Multiple |

*Source. *Rodenticides Topic Fact Sheet*. National Pesticide Information Center, Oregon State University. Last Accessed March 2014. <http://npic.orst.edu/factsheets/rodenticides.pdf>

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