

RODENT CONTROL REFERENCE GUIDE

LIPHATECH^{AG}



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WHO IS LIPHATECH AG?

While you run your operation, Liphatech Ag helps protect your valuable assets. We provide quality rodent management solutions paired with the most experienced team in the industry. Our on-farm experience means we understand your problems and needs to build effective rodent control solutions. Agriculture receives our complete and undivided attention, so you can be confident in our industry-specific recommendations.

Our products undergo a rigorous quality control process, ensuring each block, pouch and pellet meets the highest standards of rodent control.



RODENT CONTROL MATTERS

Rodents represent a serious risk to livestock production, from biosecurity to profitability. The USDA estimates that rodents destroy approximately \$2 billion in feed every year¹. Rodents can contaminate feed and water, cause serious illness or death from rodent-borne diseases and cause expensive structural damage through gnawing.

Liphatech Ag can help you develop your comprehensive rodent management plan with the appropriate combination of tools and baiting methods.

WHAT MAKES A GOOD RODENT CONTROL PROGRAM

There's no such thing as a "one size fits all" recommendation in rodent control. These steps are a guide to creating a comprehensive, customized solution for your operation.


6 Keys to Rodent Management:

- 1 | **Know your target** – Identify specific rodents and their populations to know what you are dealing with and what products and management will be required.
- 2 | **Look around** – Inspect infested buildings and surrounding areas for sources of water, food and shelter. Take note of any nesting areas.
- 3 | **Keep pests out** – Find and eliminate any unnecessary openings to block rodents from buildings.
- 4 | **Do your research** – Use this handbook as a starting point for building your rodent control program. Work with your Liphatech Ag rep or local distributor rep to tailor the program to your operation.
- 5 | **Take action** – Implement rodent management measures tailored to the site.
- 6 | **Evaluate results** – Make necessary improvements to the management program.

¹ Source: <https://www.thepoultrysite.com/articles/rodent-control-in-livestock-and-poultry-facilities>

To identify which rodent species you are dealing with, it's useful to locate their nesting, feeding and drinking areas.

NORWAY RATS

DROPPINGS	TAIL	BODY	EARS
Blunt ends and are about $\frac{3}{4}$ in (2 cm) or less in length. 	Shorter than head and body 6-8½ in (15-22 cm) long. Dark on top with a lighter underside.	Heavy and thick, 7-10 in (18-25 cm) long. Average weight is 10-17 oz (284-482 g).	Close to the body and won't cover the eyes if bent forward.

RATS' GNAW PATTERN IS $\frac{1}{8}$ IN.

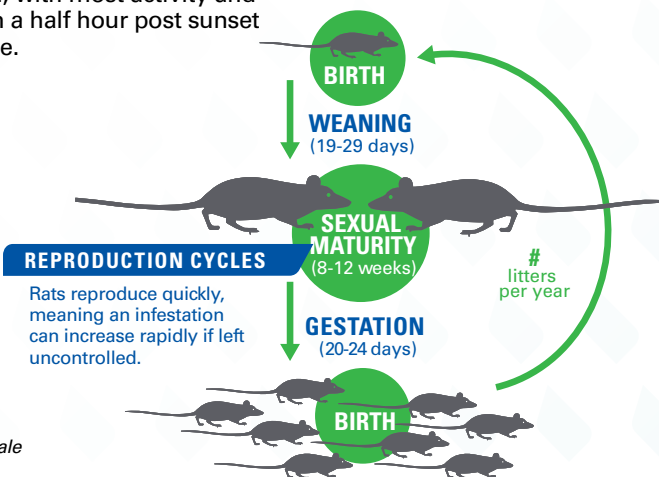
Rats can gnaw through wood, lead, aluminum, copper, cinder block and uncured concrete.

HABITS	EYES	NOSE
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Norway rats burrow in soil, litter and manure and often nest in basements and lower portions of buildings. They are nocturnal, with most activity and feeding taking place between a half hour post sunset and a half hour before sunrise.

Small.

Blunt.



*Rat photograph not to scale

SIZE COMPARISON

YOUNG RAT

Large feet and head



HOUSE MOUSE



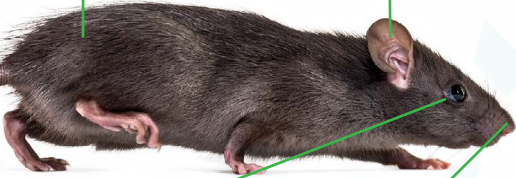

Small feet and head



Scan this QR code to watch a video explaining rodent identification and behavior



ROOF RATS

DROPPINGS	TAIL	BODY	EARS
<p>Pointed ends and are about 1/2 in (1 cm) or less in length.</p> 	<p>Hairless and longer than the head and body—7 1/2-10 in (19-25 cm) long. Uniform color from top to underside.</p> 	<p>Slender, 6 1/2-8 in (17-20 cm) long. Average weight is 6-12 oz (170-340 g).</p> 	<p>Large and cover the eyes if bent forward.</p> 
HABITS		EYES	NOSE

Due to their ability to swing, jump and climb, roof rats usually enter and nest in the upper portions of buildings. Roof rats burrow very little. They are nocturnal, with most activity and feeding taking place between a half hour post sunset and a half hour before sunrise.

Large and prominent.

Pointed.




Quarterly nighttime inspections at lights out or sundown will help identify where rodents are active.


*Rat photograph not to scale



KNOW YOUR TARGET cont.

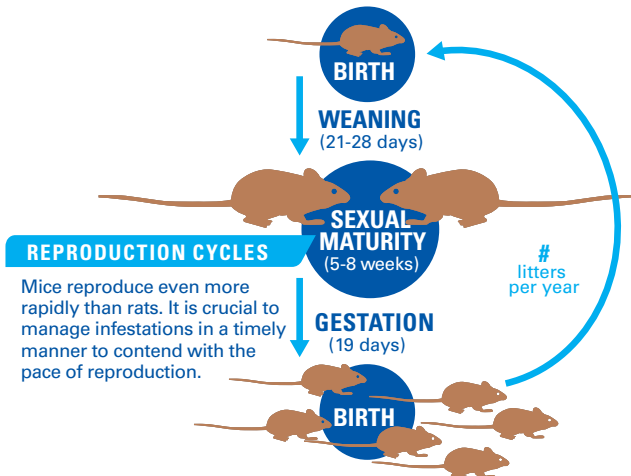
HOUSE MOUSE

DROPPINGS	TAIL	BODY	EARS
Pointed ends and are about $\frac{1}{4}$ in (.64 cm) or less in length. 	3-4 in (7-10 cm) long, seminaked and longer than the head and body combined.	Small, pear-shaped and slender, 2-3½ in (5-9 cm) long. Average weight is $\frac{5}{8}$ -1 oz (18-28 g).	Relatively large ears for its size.



THE GNAW PATTERN OF MICE IS LESS THAN $\frac{1}{16}$ IN.

HABITS	EYES	NOSE
House mice are excellent climbers. They can be found in cultivated fields, at or below ground level or even in the upper stories of buildings. Mice explore a limited home range of less than 30 feet daily for newly introduced objects. They are nocturnal, with most activity and feeding taking place between a half hour post sunset and a half hour before sunrise.	Small and somewhat protruding.	Pointed.



*Mouse photograph not to scale

To determine the extent of any rodent infestation, we recommend conducting a thorough night inspection of all barns quarterly or twice a year at a minimum.

1. TOOLS FOR CONDUCTING AN INSPECTION

✓ Flashlight

A quality flashlight will help you to see into dark corners and areas rodents occupy.

✓ Ladder

A ladder is important for accessing attic spaces and insulation to check for rodent presence.

✓ Trail Cam

If in-person night inspection is not an option, consider installing trail cams with an infrared flash to capture rodent activity.

2. SIGNS OF A RODENT INFESTATION

Rub marks

Rodents have oily fur, which, when combined with dirt, can leave marks along walls and curtains.

Gnaw marks

Rodents can gnaw on wood, wiring, insulation and other materials.

Droppings

Rodents leave droppings wherever they travel, including in insulation. To determine if droppings are fresh, sweep up the droppings from an area and check again the following day.

3. PLACE BAIT STATIONS

Based on signs of known rodent activity, consider placing extra bait stations in the following areas:

- Cool cell areas
- Admin areas
- Interior and exterior of facility
- Egg rooms
- Storage areas
- Attics
- Mechanical rooms
- Manure pits

Scan the QR code to watch a video showing common rodent behaviors and how to conduct an inspection.



Want some help? Contact Liphatech Ag to conduct an on-farm inspection.

3

KEEP THEM OUT

While it is next to impossible to completely exclude rodents from agricultural structures, it is possible to make access more difficult for them. Focus on openings at or near ground level and at the roof line to best prevent rodent access.



COMMON POINTS
OF ENTRY

Rats and mice only
require a small opening
to enter a facility.

RAT

Approx. 1 in
(2.5 cm)

MOUSE

¼ in
(0.6 cm)

Check out this video on how to
prepare your poultry houses and
swine barns for rodent pressure.



PRESENTING BAIT

There are multiple ways to “present” various active ingredients. Each has specific benefits and use cases, depending on environmental conditions and target pests.



Soft Bait

With no need to mix meal bait and pellets, soft bait pouches can be secured like conventional blocks in bait stations. Soft baits are the ideal choice for warm conditions as they maintain their integrity even in the heat.



Mini Blocks

Mini blocks are designed with gnawing edges and a center hole for securing bait on vertical or horizontal rods in bait stations.



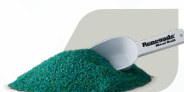
Bulk Pellets

The pellet shape mimics seeds in rodents’ environments. Paraffinized pellets are weather- and moisture-resistant.



Pellets Place Packs

Place packs are convenient for hard-to-reach baiting locations with a paraffinized formula that works well where moisture is a concern.

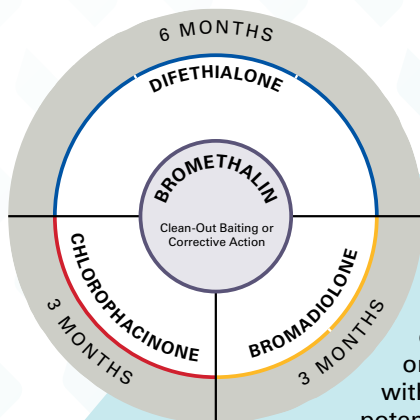


Meal Bait

Meal baits are best used where nontarget animals cannot access bait. Best applied with a scoop into hard-to-reach places.

Bulk pellets and meal bait are labeled for burrow baiting

Learn more about
Liphatech Ag products,
rotations and
bait presentations.



ROTATION WORKS

Proper rotation of multiple rodenticides helps to preserve and maintain the efficacy of the active ingredients for the future. Using only one active ingredient or bait type in areas with ongoing rodent activity can increase the potential for a resistance problem.

Contact your Liphatech Ag rep to build
a proper bait rotation for your operation.

INTERIOR AND EXTERIOR PROGRAM SPECIFICS

Whether you conduct rodent management procedures yourself or hire an applicator, here are a few guidelines to integrate into your program. These practices will be applicable when there are production animals still within the facility:



Bait station placement: Place bait stations at intervals of
Mice: 8-12 feet apart
Rats: 15-30 feet apart



Consider the weather: Use a soft bait during warm weather months. Soft bait maintains its palatability and integrity in hot environments.



Burrow treatments: Bait with paraffinized pellets or meal bait according to product label directions, or bait stations may be placed within three feet of the burrow.



Baiting frequency: To maintain a supply of fresh bait, replace bait every three to four weeks or based on site-specific inspection and rodent population levels:

- Once every two weeks for both interior and exterior bait placements during low to moderate infestations
- Weekly for moderate to high infestations



Rotation: Use a three to four active-ingredient rotation consisting of difethialone, bromadiolone, chlorophacinone and/or bromethalin.

Check out this video showing proper bait application.



BEST PRACTICES FOR DOWNTIME BAITING:

The best and most crucial time to eliminate rodents is during the downtime between flocks or groups of hogs.

- Bait for no fewer than three consecutive days; seven or more days is ideal.
- Leave buildings closed as if birds or hogs were inside to leave rodents undisturbed and simulate their normal environment.
- Maintain original runways and patterns.
- Leave rodents undisturbed while providing only one option for food — bait.
- Let buildings sit for at least two to three days undisturbed prior to windrowing, decaking the litter or washing walls, floors and equipment.
- Leave feed and water lines down for rodents up high to have easy access to bait placements.
- Keep bait fresh and clear of debris.
- Monitor the bait to determine consumption rate.
- Baits that have a stop-feeding mode of action will lead to rodents no longer consuming the bait.
- To avoid bait aversion, do not bait with an anticoagulant alongside a stop-feeding mode of action bait (like bromethalin).
- Always follow label directions—the label is the law.

EVALUATE RESULTS

6

It is important to check bait stations and conduct regular inspections to monitor the results of your program. If no bait remains, add more bait than the previous amount (within the label directions). If there is light feeding, replace it with the same amount of fresh bait. Be sure to remove any expired rodents from the bait station and application site.

HOW TO KNOW YOU'VE BEEN SUCCESSFUL

When signs of rodent activity (droppings, feeding from bait station, gnawing, etc.) decrease or cease, you know that your program has been effective.

Be sure to keep a preventative baiting program with active ingredient rotations in place to prevent future infestations.



JUST A PHONE CALL AWAY

We're here to help. Whether you need an extra hand with an inspection or guidance in developing your own rodent management program, our Technical Support team will pick up the phone (and a real human will answer).

Liphatech Ag can also provide recommendations on hiring an applicator in your area to conduct bait placements and design a preventative program custom for your operation.

WALKING THE WALK

Our Technical Support team has spent decades working with live poultry and swine production. We provide on-site inspections at farms, feed mills and other live production facilities where rodent problems persist. In addition to these facility inspections, we also offer technical classroom and field training for employees.

FOR THE DIY CROWD

Liphatech Ag is committed to helping customers through education and coaching. Liphatech Ag is your go-to source for on-demand educational videos. These short clips give in-depth answers to specific rodent management questions you won't find anywhere else online, covering questions and problems we receive most from our customers.



SCAN THIS QR CODE

to connect with our team to establish your step-by-step rodent control plan.

CONTACT INFORMATION

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