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The Hidden Costs of Rodents on Poultry & Livestock Farms

A long-standing problem that isn't going anywhere

Damage caused by rodents has been well-known since ancient times. Historical accounts show that ancient Greeks and Romans used simple, natural poisons of the day to try to limit the damage these pests caused.

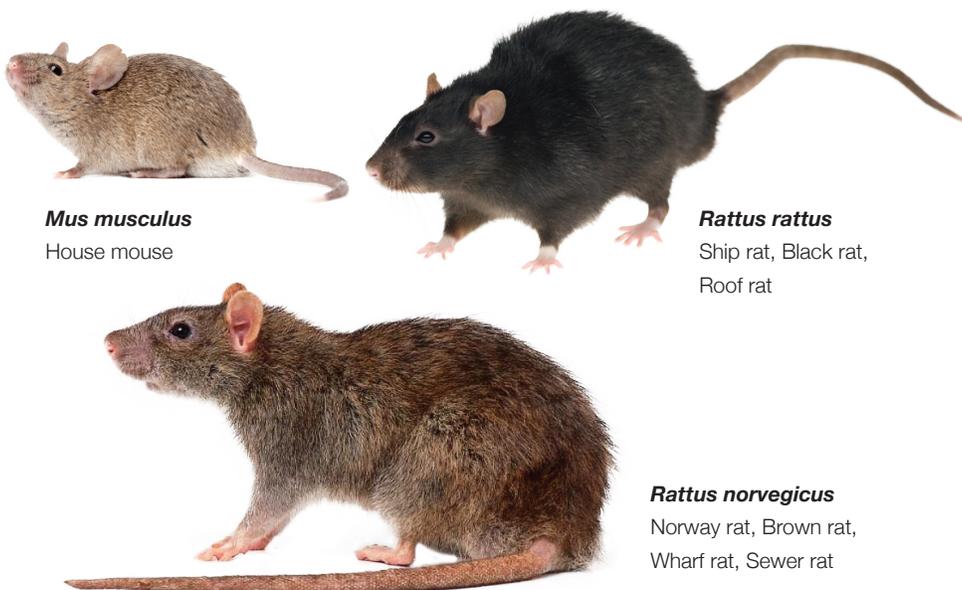
Rodent infestations are every bit as problematic today. Even in our more advanced societies, the economic impact of mice and rats is likely to be significant unless they are controlled. We have superior knowledge, which provides us with effective techniques, however there is just one “but.” These techniques must be used by experts who know how to control rodent infestations. Otherwise the problems can escalate.

Small but costly

Don't be fooled by their small size. Though rodents don't weigh much (from a few grams for a house mouse to up to 100-450 grams for rats), they can actually cause significant economic damage.

Rodents often find ideal conditions on poultry and livestock farms. There are unlimited entry options, abundant and nutritious food and water, plenty of shelter, and protection from the weather. On farms, they get everything they need and under these ideal conditions they can reach high population levels if not kept in check.

I've often wondered over the years whether it's possible to understand how much damage mice and rats could cause at farms if they were not controlled. Since reliable figures are hard to come by, we're learning how to estimate the costs that rodents can impose on poultry and livestock farms.



Mus musculus
House mouse

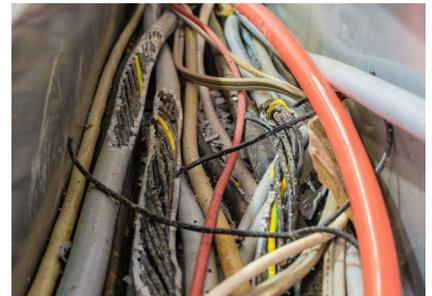
Rattus rattus
Ship rat, Black rat,
Roof rat

Rattus norvegicus
Norway rat, Brown rat,
Wharf rat, Sewer rat



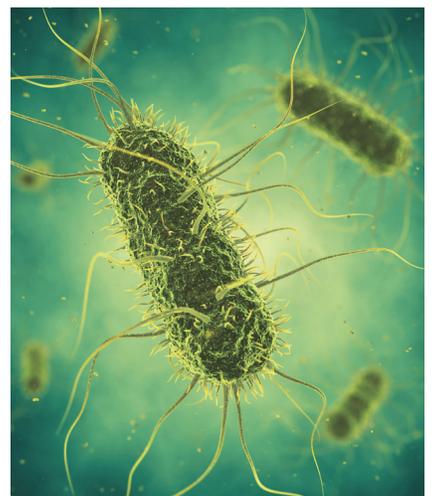
above:

Even a small rodent population will consume and contaminate as much as 20 metric tons of feed annually.



above:

Rodents damage your farms in many ways from gnawing on electrical wires to destroying insulation.



above:

Carriers of at least 45 diseases and 200 human pathogens, rodents are responsible for an estimated \$1.4 billion in Salmonella related medical costs on poultry farms annually.



Farms are losing big money

As explained in the sidebar, rodents can consume or contaminate large quantities of food meant for livestock. They can also damage packaging, which results in even more waste. But the cost of the feed is not the only expense due to rodent infestations.

Other costs come from several of the diseases rodents can transmit to livestock due to the close proximity. For example, rats carry rabies, a disease that affects pigs. They also cause salmonella poisoning and leptospirosis, just to name a few. This results in a loss of production, not to mention veterinarian expenses and treatments, which are hard to quantify. Rats can also transmit a large number of diseases to humans. In these cases too, the economic cost is difficult to establish.

Rats have been known to kill small animals, such as chicks on poultry farms. They even chew on pig's ears causing stress and increasing the risk of disease transmission.

Rats gnaw on practically everything, causing damage to structures. Electric cables are a prime target. Farms are often forced to hire electricians to repair electrical systems and cables that have been chewed through. "Now, I work almost daily to repair the food distribution system as it's continually getting backed up because of rat damage," a comment a farmer in Umbria shared with me.

Sometimes, roofs or insulation are damaged by rats and mice. Rats tend to create openings in shelters, as is often the case with chicken houses and nylon shelters. Farmers will then have to repair and even rebuild. Rats and mice often take shelter inside insulation panels, removing the insulation to create a home. This causes heat loss in the structures, and reduces water tightness, which can lead to flooding, thus posing an additional health risk for the livestock. So we have to consider repair costs.

Last but not least, there's the human element. Rodents cause great discomfort and even spread disease. Working in an unhealthy environment can be frustrating and even cause mental health issues. These are social costs that are hard to calculate, but they exist and are significant.



How much does it cost a farm to feed its rodent population?

Within a poultry or livestock farm, rats can grow to enormous population levels. The amount of food they eat can be considerable. The losses will vary depending on the type and size of the rodent breed, and of course the population size.

For example, in a shed where pigs are raised, left unchecked, there could be several hundred rats. Let's say there are two hundred rats (a large but possible population at many farms) with an average weight of 150 grams each, and a daily feed requirement equal to 10% of their body weight (probably an underestimation), the amount of feed consumed will be around 3 kg daily for a total of more than one ton of feed consumed each year. That can cost a thousand euros, or \$1,170 annually.

It should also be noted that rats damage feed packs, making the loss even greater. Often, the damaged feed can't be used because it's contaminated by rodent excrement and urine. The risk of disease transmission is just too great. According to some estimates, the feed contaminated by rats can be up to ten times what they actually consume. Following this example, the feed contamination loss can be upwards of ten thousand euros, or \$11,700.

The solution? More appealing bait and many applications.

We've seen that the presence of rats and mice on farms is expensive. Many factors are not easily quantifiable, but they're certainly high unless appropriate action is taken. Careful control plans must be used to avoid them, or at least to reduce them as much as possible.

Robert Corrigan is one of the world's leading experts in rodent control. He stated, "Conducting effective and efficient control programs against rodents in chicken and pig farms is challenging, even for professionals in the field."

Sometimes even the most experienced and willing professionals struggle with slow results. As always, the key to success lies in the practitioner's ability and the proper application.

I have repeatedly stated that controlling rodents on farms is a long term task. Livestock feed makes most bait unappealing, and environmental cleanup and removal of rodents can be difficult. It's practically impossible for an open structure like a farm to always be free of mice and rats.

It's crucial to use high-quality bait, which can compete with the abundance of available food. A farmer in Tuscany told me, "I don't know what to do anymore. The rats only eat the smallest amount of the bait I put out. On the other hand, with all this feed, why would they be interested in poison?"

Another important aspect is safety. Care should be taken to use baits that can be secured and always follow label instructions.

From what I have personally encountered in field trials, Selontra[®] rodent bait meets all of these requirements, and I think it's a good solution.

Summary

Livestock farms offer the perfect living conditions for rodents. There's plenty of food and shelter, which explains the large infestations that can occur. If these infestations are not controlled they can cause huge economic losses. Rodents can transmit diseases to livestock and even humans. They damage feed, cables, insulation and more. The most effective solution is to rely on experienced professionals. They know the right techniques and bait to control the infestation.



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Dr. Dario Capizzi, Functionary at Latium Region, Direction for Environment and Natural Systems, Rome, Italy is an expert and a researcher in the management of invasive rodent populations. He has published papers in many books and international peer-reviewed journals, and has presented and lectured at conferences and congresses. In 1994, Dario worked with a number of Italian universities and research institutes. The list includes the National Research Council, the University of Pisa, and the National Wildlife Institute. Since 1999, Dario has served as a consultant in the field of pest control in the urban environment and animal husbandry. In 2003, Dario joined the Latium Region, coordinating monitoring and environmental restoration projects. These projects included the eradication of invasive rats from small islands and monitoring of the impact of rodenticides on non-target species. He now also serves as the project manager of the Life PonDerat.

References

¹ Corrigan, R.M. 2001: Rodent control: a practical guide for pest management professionals. GIE Media, Cleveland, Ohio

Innovation for a Better Tomorrow

In 2050, nearly ten billion people will live on Earth. While the world's population and its demands will keep growing, the planet's resources are finite. Though faced with huge global challenges, BASF sees many opportunities, especially emerging from chemistry. To keep pace with the ever-evolving and growing needs of our global customers, we have set out to strengthen our foundation. For example, BASF continues to dedicate substantial resources to drive innovation and sustainable solutions:

- Around 3,000 projects are in our research pipeline
- 10,000 employees are involved in research and development
- 100,000 molecules tested on average for one patent
- Major research centers in Limburgerhof, Germany, Research Triangle Park NC, USA and Thane, India and testing stations in the US, Brazil, Spain, Germany, India, and the Philippines

BASF continues to create chemistry to meet the huge global challenges for a better tomorrow.