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Need for further refinement and coordination regarding the ban on infestation-independent permanent baiting in food and feed production facilities

Rodents such as mice and rats are often carriers of pathogenic bacteria, viruses or parasites. They are particularly undesirable in food and feed production facilities, as they can introduce pathogens and, for example, transmit them to farm animals or carry them into the food chain. They therefore, pose a risk to the health of animals and humans and can also impair the quality and quantity of feed.

For these reasons, businesses that produce food and animal feed have a legal obligation to prevent contamination risks and to comply with hygiene measures. These include appropriate pest control methods, such as so-called 'infestation-independent permanent baiting' (in German "Befallsunabhängige Dauerbeköderung, abbreviated as "BUD"). Anticoagulants are frequently used as active ingredients in such baits. These are substances that inhibit blood clotting in rodents. When placed in hard-to-reach areas, they can help to control unwanted rodents.

However, BUD is set to be banned in future for environmental and animal welfare reasons. Discussions are currently underway as to whether an exemption from the ban can and should be granted for the particularly hygiene-sensitive food and feed sectors, as demanded by the food industry. A fundamental prerequisite for such a derogation is that the anticoagulant active substances must continue to be permitted for use across the EU. This is currently being discussed within the European Commission's Standing Committee on Biocidal Products (SCBP). Background: As the basis for national authorizations of biocidal products, fundamental decisions are first taken at EU level, which are then valid in all EU Member States. This includes, on the one hand, the decision on which active substances may be used in biocidal products in Europe (EU active substance evaluation).

Critics of an exemption point out that there are sufficiently effective, non-chemical alternatives to BUD. In the BfR's view, before such alternatives can be used,

potential health effects must first be investigated more thoroughly. Nor has the feasibility of implementing such alternatives in practice been sufficiently researched to date. From the perspective of health risk assessment, there is an urgent need for improvements and coordination in this area.

1 Subject of the assessment

The food industry is calling for permanent baiting (BUD), regardless of infestation, to remain permitted and for an exemption to be granted for the hygiene-sensitive food and feed sectors.

- Having assessed the situation, the BfR sets out its position on this request below and provides an assessment of its feasibility and the scope for action within the current procedures. Specifically, the requirements are as follows: firstly, to advocate for the retention of active substance authorisations for permanent baiting with anticoagulants at European level, so that the BUD can continue to be used in Germany as an exemption for the food and feed sectors;

- and, as a second step, to ensure that product authorisation in Germany provides for the BUD as a derogation for the particularly hygiene-sensitive food and feed sectors where there is a risk of infestation, as the reasons for the maintaining derogation for the food and feed sectors remain unchanged.

2 Results

From the BfR's perspective, rodents in establishments with highly sensitive hygiene areas – such as in the pharmaceutical and medical technology sectors or in food and feed production facilities – pose a significant risk to human health as carriers of bacterial, viral and parasitic zoonotic pathogens, as they carry numerous pathogenic microorganisms in their intestines, urine and, where applicable, on their fur, and can bring these into production environments. Due to their high mobility, rodents can spread pathogens between waste areas, sewer systems and production zones, thereby contaminating both raw and finished products. Legally, food businesses are obliged to prevent such contamination risks by taking measures to prevent acute infestations. Under Regulation (EC) No 852/2004, businesses must therefore comply with general hygiene measures. Specifically, Annex II requires the protection of premises against pest infestation, rather than merely combating an infestation that has already been detected. In the event of such an infestation, a closure of the premises is generally the first possibility to be considered. To prevent thissituation, suitable pest control methods must be used (Chapter IX, No. 4), which include the BUD.

BUD is also necessary in the feed sector to prevent serious consequences for animal health and the transmission of pathogens via farm animals into the food chain. Rodents are frequently found on poultry and pig farms as well as in warehouses, and act as vectors and

reservoirs for a wide range of pathogens. Rats can shed zoonotic pathogens, bring them into livestock housing and transmit them to feed, water troughs and contact surfaces. This increases the risk of infection among animals. Furthermore, rodents not only release pathogens that impair animal welfare and performance, but they also cause significant losses in feed quantities in feed stores through direct consumption losses. Feed quality is reduced as they contaminate the feed with faeces, urine and saliva. The BUD, containing anticoagulant active ingredients, is effective in hard-to-reach areas. Bait stations can be placed behind equipment and in storage areas where traps are difficult to set. Effective control of the rodent population thus lowers the risk of infection in farm animals, reduces losses due to disease and improves overall animal welfare and performance parameters – and ultimately has an impact on humans via the food chain.

Any decision regarding the BUD is therefore inherently linked not only to economic and environmental considerations, but also to a balancing of health interests.

2.1 Current status and scope for action regarding the ban on BUD

A decision on whether to extend the authorisation of anticoagulant active substances is currently pending before the European Commission's Standing Committee on Biocidal Products (SCBP). In order to secure a derogation for the use of BUD – which is to be banned outright – in hygiene-sensitive food and feed sectors, a corresponding provision is required in the European Commission's implementing regulations.

In the ongoing procedure, a more comprehensive assessment of the potential health impacts has so far been largely overlooked, as has an examination of the actual practical feasibility of implementation in business operations.

From the perspective of health risk assessment, there is an urgent need for improvements and coordination in this regard.

3 Rationale

Rodents pose a significant risk as carriers of bacterial, viral and parasitic zoonotic pathogens in facilities with highly sensitive hygiene areas, such as those in the pharmaceutical and medical technology sectors or in food and feed production facilities (Han et al., 2016), as they carry numerous pathogenic microorganisms in their intestines, urine and, in some cases, on their fur, and can introduce these into production environments. Particularly relevant bacterial pathogens include *Salmonella spp.*, *Campylobacter spp.*, *Yersinia enterocolica*, *Leptospira spp.*, *Listeria monocytogenes* and pathogenic *Escherichia coli* (e.g. STEC) (Basiouni et al., 2025; Jahan et al., 2021; Meerburg and Kijlstra, 2007). Transmission occurs predominantly via the faecal-oral route through faecal and urinary contamination of raw materials, feed, food, surfaces, equipment and packaging materials, but also indirectly via dust and wastewater.

Rats may also be infected with various viral zoonotic pathogens, which, following transmission to humans, can in individual cases lead to severe illness (Ulrich et al., 2023). For instance, isolated cases of Seoul hantavirus infection have occurred in Germany, which were attributable to transmission from rats (Hofmann et al., 2020). The Seoul hantavirus can cause severe illness with acute kidney damage, although a route of transmission via contaminated food has not yet been described. Furthermore, the rat hepatitis E virus (rat

HEV) is widespread among wild rats in Germany (Panajotov et al., 2024). In individual cases, it can also be transmitted to humans and lead to acute or chronic hepatitis (Mueller et al., 2025). Transmission of this virus via food contaminated with rat excreta appears possible, although the exact routes of transmission of rat HEV remain unclear at present. Rats can also carry human-pathogenic pathogens without replicating them themselves. For example, human norovirus – one of the most significant foodborne viral species – has been detected in the faecal matter of rats (Wolf et al., 2013). Furthermore, a metagenomic analysis of the faecal contents of wild rats from Germany revealed the presence of potentially zoonotic gastroenteritis pathogens such as rotaviruses, sapoviruses and astroviruses (Sachsenröder et al., 2014).

Parasitic zoonotic pathogens can also be transmitted by rats and other synanthropic rodents and, in individual cases, cause severe illness in humans. Relevant parasitic zoonotic pathogens include, in particular, protozoa such as *Giardia intestinalis*, *Cryptosporidium spp*. and *Toxoplasma gondii,* as well as helminths such as *Hymenolepis nana* or *Trichinella spiralis* (Rodriguez-Morales et al., 2025). In the present context, particular significance is attached to those parasitic zoonotic pathogens that are transmitted via the faecal-oral route through the ingestion of infectious developmental stages.

Infectious stages such as cysts (*Giardia intestinalis*) or oocysts (*Cryptosporidium spp*.) can be introduced into the environment, production facilities, foodstuffs, raw materials and surfaces via the faeces of infected rodents, thereby posing a significant risk of infection to humans (Li et al., 2023, Rojas-Lopez et al., 2022, Rodriguez-Morales et al., 2025, EFSA BIOHAZ Panel 2018). For the zoonotic pathogens *Giardia intestinalis* and *Cryptosporidium spp*. epidemiological and molecular biological findings confirm the presence of human-pathogenic species or zoonotically relevant assemblages in synanthropic rodents, as well as of rodent-associated Cryptosporidium species in humans, which supports a plausible role for rats as a source of contamination, particularly in areas relevant to food hygiene (Rasková et al., 2013; Rojas-López et al., 2022; Stensvold et al., 2024). Due to the low infectious dose and the limited chemical inactivation of *Cryptosporidium spp*. and *Giardia intestinalis,* the prevention of contamination plays a central role (EFSA BIOHAZ Panel, 2018).

In the case of the helminth *Hymenolepis nana*, in addition to faecal-oral transmission to humans, transmission is also possible – as with *Hymenolepis diminuta* – through human ingestion of beetles infected via rat faeces in contaminated foodstuffs (Thompson 2015, Voge et al., 1957, Mijatović et al., 2024, Strand et al., 2019, Coello Peralta et al., 2023).

With regard to *Toxoplasma gondii* and *Trichinella spiralis*, transmission of parasitic zoonotic pathogens from rats consumed by farm animals to humans is possible. Pigs can become infected through the ingestion of infected rodents and their carcasses (Rodriguez-Morales et al., 2025). Transmission to humans can occur through the consumption of raw or inadequately cooked or treated pork (EFSA BIOHAZ Panel, 2018; Opsteegh et al., 2015). In the case of *Trichinella spp*., this route of transmission is monitored through the legally required trichinella testing, whereas no comparable routine meat testing exists for *Toxoplasma gondii*. Under inadequately controlled production and processing conditions, a risk of infection cannot be ruled out.

Due to their high mobility, rodents can spread pathogens between waste areas, sewerage systems and production zones, thereby contaminating both raw and finished products. Food businesses are legally obliged to prevent such contamination risks. Under Regulation (EC) No

852/2004, establishments must comply with general hygiene measures; specifically, Annex II requires the protection of premises against pest infestation and the use of appropriate pest control methods (Chapter IX, No 4).

From a feed safety perspective, the controlled, permanent baiting of rodents with anticoagulant active substances prevents serious consequences for animal health and the transmission of pathogens via farm animals into the food chain (Jahan et al., 2021). It is not uncommon for Salmonella, *Campylobacter* and other zoonotic pathogens, as well as bacterial and viral pathogens, to be identified in connection with rodent populations on livestock farms (Backhans et al. 2012, Domanska-Blicharz et al. 2023). Consistent rodent control is essential, particularly with regard to zoonoses. Rodents are frequently found on poultry and pig farms, as well as in warehouses, and act as vectors and reservoirs for a wide range of pathogens. Rats can shed zoonotic pathogens, introduce them into livestock housing and transmit them to feed, water troughs and contact surfaces. This increases the risk of infection in animals. Relevant zoonotic pathogens include, for example, *Toxoplasma gondii*, *Leptospira* and *Campylobacter spp*., as well as certain serovars of *Salmonella* (Backhans et al., 2012).

Furthermore, rodents not only release pathogens that impair animal welfare and performance, but they also cause significant losses in feed quantities in feed stores through direct feed wastage. In addition, they reduce feed quality by contaminating it with faeces, urine and saliva. Permanent baiting with anticoagulant active ingredients is effective in hard-to-reach areas. Bait stations can be placed behind equipment and in storage areas where traps are difficult to set. An effective reduction in the rodent population thus lowers the risk of infection in farm animals, reduces losses due to disease and improves animal welfare and performance parameters overall – and ultimately also has an impact on humans via the food chain. In the BfR's view, the existing data do not yet allow for a reliable assessment of whether and to what extent the current level of protection can be maintained without BUD.

Further information on pathogens

Campylobacter: The diarrhoea pathogen is often found on poultry meat
https://www.bfr.bund.de/en/service/frequently-asked-questions/topic/campylobacter-the-diarrhoea-pathogen-is-often-found-on-poultry-meat/

Questions and answers on protection against salmonella infections (in German)
https://www.bfr.bund.de/fragen-und-antworten/thema/fragen-und-antworten-zum-schutz-vor-infektionen-mit-salmonellen/

Video: Zoonoses: What are they?
https://www.bfr.bund.de/en/press-office/media-library/video/zonooses-what-are-they/

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