

EFSA and COVID-19

The European Food Safety Authority (EFSA) has worked with ECDC on the assessment of risks to human health from coronavirus related to animals, particularly farmed mink as they have the highest likelihood to become infected and transmit SARS-CoV-2 to animals and humans. The first assessments on mink were carried out after Denmark reported cases of humans infected with SARS-CoV-2 variants related to those animals. The virus was subsequently detected at mink farms in several countries in the EU/EEA.

At the beginning of the COVID-19 *pandemic*, EFSA closely monitored the scientific literature in relation to the possible role of food in the transmission of SARS-CoV-2, the virus causing the disease COVID-19) to humans. Up to now, there is **no evidence that food is a source or transmission route of SARS-CoV-2.**

Latest

February 2023 – In its [latest recent scientific assessment](#), EFSA recommend that the most appropriate approach to monitor farmed mink is to confirm outbreaks of SARS-CoV-2 as soon as the presence of the virus is suspected and then to monitor the evolution of the virus. EFSA, in collaboration with ECDC, recommends consistently applying preventive, control, and biosecurity measures in mink farms, including systematically and frequently testing people who access them and ensuring the use of personal protective equipment. No specific regulated monitoring is recommended in the EU for companion animals or wildlife, since the risk of transmission of SARS CoV-2 infection from these animals is very low.

Milestones

2021



February

A [report compiled by EFSA and the European Centre for Disease Prevention and Control \(ECDC\)](#) recommends that early detection of SARS-CoV-2 should be a priority for monitoring activities at mink

farms in the European Union. The report proposes options for monitoring strategies that will help to prevent and control spread of the disease.

It concludes that all mink farms should be considered at risk from SARS-CoV-2 and that monitoring should include active measures such as testing of animals and staff in addition to passive surveillance by farmers and veterinarians.

2020



November

EFSA's animal health specialists contribute to a [rapid assessment of the risks to human health from the new SARS-CoV-2 variants related to mink](#). The assessment contains several recommendations aimed at protecting public health.

SARS-CoV-2 in animals

The scientific report of January 2021 produced by EFSA, in collaboration with ECDC, on "Monitoring of SARS-CoV-2 infection in mustelids", along with the rapid [risk assessment](#) of November 2020 by ECDC, are the basis for the current **monitoring measures** in the EU for mink, other animals of the family Mustelidae and raccoon dogs (see [Commission Implementing Decision \(EU\) 2021/788](#)).

The epidemiological situation of SARS-CoV-2 in humans and animals is **continually evolving** and new scientific knowledge on the spread of SARS-CoV-2 in both humans and animals has recently become available. In 2023, in collaboration with ECDC, EFSA published a [scientific opinion](#) covering the susceptibility of different animal *species* to SARS-CoV-2, the risk for animal and public health, and monitoring, prevention and control strategies. The findings supported risk managers to revise and adapt the monitoring system in the EU for farmed mink and other relevant animal species.

Among farmed animals, **American mink** have the highest likelihood to become infected from humans or animals and further transmit SARS-CoV-2. Since humans are considered the most important source of introduction of SARS-CoV-2 into mink farms, EFSA recommends systematic frequent testing of personnel and visitors, limitation of visits, consistent use of personal protective equipment and on-farm biosecurity. Once introduced into a mink farm, SARS-CoV-2 spreads efficiently from animal to animal, resulting in extensive virus circulation and the risk of spill-over to humans in contact with the mink. The extensive circulation of SARS-CoV-2 in the infected farm can drive **virus adaptation**.

Currently, the most appropriate approach to monitor farmed mink is to confirm outbreaks of SARS-CoV-2 **as soon as the presence of the virus is suspected**, testing dead or clinically sick animals in case of increased animal mortality or morbidity or positive farm personnel, and then monitoring the genomic evolution of virus variants.

The transmission of SARS-CoV-2 from humans to and among **companion animals** (cats, ferrets and hamster species being the most at risk) is considered to have no or very low *probability* of impacting on virus circulation in the general *population*. Therefore, no specific monitoring is recommended for companion animals.

The number of **wildlife species** that are reported to be infected by SARS-CoV-2 grows constantly, thanks to the active research in this field, which should be further promoted. In the EU, no cases of infected wildlife, apart from a few feral American mink, were reported so far and only white-tailed deer in North America have been demonstrated as a wild species able to maintain and possibly spill back the infection to humans.

As a safety measure, EFSA recommends the adoption of biosecurity measures by humans dealing with wildlife and safe disposal of garbage and waste from human communities in both urban and rural settings to reduce the risks of SARS-CoV-2 spill-over to wildlife. No specific regulated monitoring is needed for wildlife in the EU, apart from monitoring where the presence of the virus is suspected, particularly in white-tailed deer, wild carnivores, bats and rodents living in or close to human settlements.

SARS-CoV-2 and food: FAQ

Is consumption of food a transmission route of SARS-CoV-2?

There is no evidence that food poses a risk to public health in relation to SARS-CoV-2. The major transmission pathway for SARS-CoV-2 is from person to person, mainly via respiratory droplets that infected people sneeze, cough, or exhale (respiratory route).

Foodborne viruses are viruses infecting humans via food consumption and drinking water. There is some evidence that SARS-CoV-2 can infect intestinal cells (see specific question below), but there is no evidence that points to SARS-CoV-2 as a foodborne virus or of any type of food being the source of a SARS-CoV-2 infection.

In the [scientific advice](#) produced by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES), it was underlined that there is no evidence that contaminated food can lead to infection of the digestive tract although the possibility of the respiratory tract becoming infected during chewing cannot be completely ruled out.

Can food be contaminated with SARS-CoV-2?

When good hygiene practices are not properly followed during the handling and preparation of food, the surface of food might become contaminated – for example, by infectious droplets being released by an

infected person (e.g. via coughing, sneezing, speaking loudly) or by the food being touched with contaminated hands. Contamination can occur on food and surfaces used for food preparation (e.g. cutting boards) in the same way as for any other object and surface.

Does the virus survive on food?

Viruses cannot multiply in foods, but in certain conditions they can survive on foods.

Does the virus survive in food during cold storage and freezing?

Laboratory studies showed that SARS-CoV-2 remained stable at 4°C on a variety of surfaces for several days and some positive samples have been detected from refrigerated facilities and cold-chain food or its packaging. This suggests that SARS-CoV-2 could persist on contaminated refrigerated or frozen products. However, no link has been established between SARS-CoV-2 infection and food consumption.

Does the virus survive in food during cooking?

Cooking at sufficiently high temperatures along with the application of good hygiene practices protects consumers against a wide range of foodborne infections and also inactivates SARS-CoV-2 if it were present on food. The World Health Organization (WHO) recommends cooking food thoroughly, especially meat, poultry, eggs, and seafood and bringing foods such as soups and stews to boiling point to make sure that they reach 70°C.

Does the virus survive on food packaging and other surfaces?

Scientific evidence showed that coronaviruses can persist in the environment and on different types of surfaces that might be in contact with food. Research has shown persistence on steel up to seven days and on plastic and glass for up to four days. Other surfaces have also been investigated e.g. copper, aluminium, paper, cardboard, wood, and rubber.

On the other hand, coronaviruses are susceptible to, and inactivated by, certain biocidal agents. For example, disinfection procedures applying 62–71% ethanol, 0.5% hydrogenperoxide or 0.1% sodium hypochlorite for one minute exposure time are considered effective to inactivate coronaviruses.

Persistence on food packaging or other materials does not imply that these materials are a source of infection. Currently there is no evidence of transmission of SARS-CoV-2 through food packaging or other materials.

Can SARS-CoV-2 establish intestinal infection and subsequently cause infection through the oral transmission route?

There is experimental evidence of the establishment of human intestinal infection with SARS-CoV-2, however there are many knowledge gaps, and direct evidence for the involvement of the gastro-intestinal tract in the pathogenesis of COVID-19 is insufficient. Recent in vitro studies

(using cell cultures, and organoids) have shown the possibility of intestinal infection by SARS-CoV-2. However, the use of *in vivo* animal models (including non-human primates) has resulted in some conflicting evidence.

For example, in one study macaques exposed to SARS-CoV-2 via the intragastric route did not show evidence of infection, while in a second recent study intragastric inoculation led to the detection of viral *RNA* and/or infectious viruses in many tissues and gastroenteric contents. Limitations remain on the direct applicability to humans of the results of these experiments.

In summary, although infection with SARS-CoV-2 through the oral route in humans cannot be totally excluded from a theoretical point of view, many scientific uncertainties remain and much more robust evidence is needed before drawing firm conclusions. This evidence relates in particular to the proportion of patients who have infectious particles in their faeces; the amount of viral particles that may be present in patients' faeces; how the virus behaves when it is exposed to a human's gastric and intestinal environment; and the amount of virus needed to cause infection in humans.

What can food business operators do to protect consumers during the SARS-CoV-2 *pandemic*?

Food business operators should scrupulously apply the same principles and procedures which are already in place in the EU for ensuring safe food production. In fact, healthy workers and compliance with good hygiene practices during all stages of the production, processing and manipulation of food are key to protecting against all microbiological agents causing foodborne infections.

Published on this topic

Type: Scientific Opinion

SARS-CoV-2 in animals: susceptibility of animal species, risk for animal and public health, monitoring, prevention and control

Published: 27 February 2023

Type: Technical Report

Analysis of the survey results on EU Agencies operational activities related to the COVID-19 pandemic

Published: 18 January 2022

Type: Scientific Report

Monitoring of SARS-CoV-2 infection in mustelids

Published: 3 March 2021

Type: News

SARS-CoV-2 in mink: recommendations to improve monitoring

Published: 18 February 2021

Type: News

SARS-Cov-2 variants in mink: rapid assessment published

Published: 12 November 2020

See also

[Can the new type of coronavirus be transmitted via food and objects? \(BfR\)](#)

[COVID-19 - ANSES's recommendations on food, shopping and cleaning \(ANSES\)](#)

[Coronavirus disease \(COVID-19\): Food safety and nutrition \(WHO\)](#)

[Q&A: COVID-19 and food safety \(FAO\)](#)