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## Besvarelse vedr.

### ▸ Rengøring af tømte minkstalde på smittede farme.

#### Bestilling

- Efter tømning af stalde for mink vil der være et behov for rengøring.

Fødevarestyrelsen ønsker en vurdering af, om det på smittede farme er nødvendigt at rengøre staldene nu efter endt tømning, eller om det er forsvarligt bl.a. ud fra et folkesundhedsmæssigt perspektiv at lade staldene stå, til der evt. skal genindsættes mink i 2022?

Endvidere ønskes en vurdering af, hvor lang tid, der vil gå, før en stald vil være fri for smitte.

#### Baggrund

- Vurderingen skal bruges som baggrund for at beslutte, om alle smittede minkfarme skal rengøres og desinficeres efter endt aflivning af besætningen ud fra en folkesundhedsmæssig betragtning og en samfundsøkonomisk vinkel, eller om farmene kan stå urørte i en periode, uden at være rengjort og desinficerede. Kan ikke rengjorte minkfarme udgøre et smittereservoir i forhold til mennesker eller dyr, herunder vildt.

#### Svar

- Once the mink are culled and disposed of, then only the residual virus from the mink sheds represents a risk for infection of either human or animal hosts. At the farm site, multiplication of virus will no longer happen, as there is no live hosts in which active infection can occur. The amount of infective virus will diminish over time.

As indicated previously (Risikovurdering af rengøring og desinfektion af ejendomme, efter aflivning af mink, der er testet positive for SARS-CoV-2 samt risikovurdering af overlevelse af SARS-CoV-2 i husdyrgødning fra minkbesætninger, der er testet positive for SARS-CoV-2), if mink sheds are thoroughly cleaned and disinfected then there should be only a low risk of infection for workers on the farm or to any potential animal hosts. Disinfection of clean surfaces should inactivate the virus very quickly.

Virus in liquid slurry should be fairly easy to inactivate (e.g. with calcium oxide (kalk) by bringing the pH to >12). Virus-contaminated solid waste is the hardest to deal with since it can be difficult for

disinfectant or other chemicals to penetrate the material. Thus, the loss of any virus infectivity within such solid material is dependent on the stability of the virus itself and this is very temperature dependent. Under cool conditions (e.g. 5°C, as in winter conditions) coronaviruses have been shown to survive in slurry for > 8 weeks (Bøtner). It has been suggested previously that solid manure, potentially containing virus, should be treated with calcium oxide (kalk) and left for a minimum of 3 months.

However, it must be emphasized that in the period just after culling of infected mink, the amount of virus in the environment is expected to be high.

Other than mink, which are clearly highly susceptible to the virus, certain other animals can become infected (i.e. cats and dogs) but do not seem able to spread the infection efficiently. Some other species, e.g. Syrian hamsters and ferrets, can be infected with SARS-CoV-2 experimentally but pigs and mice do not appear to be susceptible under these conditions. Certain avian species (i.e. chickens and ducks) have also been shown to be resistant to infection. Clearly not all animal species have been tested but in general coronaviruses are rather host-specific and it is only occasionally that infection of other species occurs but this can be unpredictable (as with mink).

If farms are depopulated but not cleaned and disinfected, then it is expected to be *very likely (90-95%)* that after a period of 6-7 months (i.e. until June 2021), the higher temperature will achieve inactivation of any virus that may have been present. However, in the period immediately after culling of infected mink, it is expected to be *almost 100% certain* that infectious virus will be present at the farm. Therefore, if farms are left without cleaning and disinfection it is of utmost importance to ensure that wildlife, cats, birds and humans have no access to the farm area. Most farms have open buildings, where it can be very difficult to ensure that no wild animals and birds get access to the area. In 26 of 161 farms, passage crossing the fences were observed at the veterinary inspections of infected farms, and in 24 of the 161 farms, holes in the fences were observed.

Overall, after a 6-7 months period it is very likely (90-95%) that the virus is inactivated. However, in the period immediately after culling, it is almost 100% certain that infectious virus will be present, and it seem difficult to totally prevent contact between the contaminated farm environment and wild life, birds and cats.

## Referencer:

Risikovurdering af rengøring og desinfektion af ejendomme, efter aflivning af mink, der er testet positive for SARS-CoV-2 samt risikovurdering af overlevelse af SARS-CoV-2 i husdyrgødning fra minkbesætninger, der er testet positive for SARS-CoV-2, FVST: 2020-14-81-02827, KU: 061-0147/20-3680, SSI: 20/10778