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Updated assessment of the risk to human health in the case of resumed mink herds from 1 January 2023



Contents

1.	Mission, background and purpose	3
2.	Delimitation and reservations	4
3.	Summary	6
4.	Assessment of risk to human health by resumed mink herd from 1 January 20238	
4.1	Special occupational risk for mink workers	8
4.2	Additional societal infection related to mink	9
4.3	Development of new virus variants in mink herds	10
5.	Assessment of infection prevention measures	12
5.1.	Testing of employees	12
5.2.	Vaccination of employees	13
5.3.	Hygiene measures	13
5.4.	Restrictive access to mink herds	13
5.5.	Infection prevention measures in mink herds	14



1. Mission, background and purpose

On 3 March 2022, the Ministry of Health (SUM) requested the Statens Serum Institut (SSI) for an updated assessment of the risk to human health of resumed mink herds from 1 January 2023. The following appears from SUM's order to SSI:

As previously discussed, a new risk assessment in relation to public health will be made during 2022, including the inclusion of any relevant infection prevention measures.

SSI is asked to prepare an updated risk assessment for human health in the case of resumed mink herds from 1 January 2023 (note) and coordinate this with SST (as well as STPS if applicable) with regard to relevant inputs. SSI is also asked to include DK-VET's scenarios to the relevant extent, as DK-VET receives an order from the Danish Veterinary and Food Administration and therefore in parallel assesses possible infection prevention measures for resumed mink herds, which may form the basis for SSI's risk assessment. human health.

The Danish Veterinary and Food Administration's order for DK-VET is forwarded to the background.

On 3 November 2020, SSI contributed a similar assessment of the risk to human health by allowing mink breeding to continue into the 2021 season. On 13 June 2021, SSI issued an updated risk assessment for any resumed mink team from 1 January 2022. The conclusions of the risk assessment were confirmed by SSI on 27 September 2021.

It is this risk assessment that needs to be updated.

The risk assessment relates to the human health of resumed mink herds from 1 January 2023. Economic impact considerations are therefore not relevant.

The purpose of this health professional risk assessment is thus to assess the risk to human health in the case of resumed mink farming from 1 January 2023. As also stated above, SSI has previously prepared similar assessments of the risk to human health in mink breeding - for the first time on 3 November 2020¹ and since June 2021, when SSI prepared an updated risk assessment for any resumed mink team from January 1, 2022².

The following is an initial description of how SSI has chosen to delimit the risk assessment, just as key uncertainties and reservations about the assessment are outlined.

Next, the main conclusions of the risk assessment are summarized in a summary health professional assessment in section 3, after which SSI's assessment of the risk to human health and the effect of various infection-reducing measures are described in more detail in sections 4 and 5.

In the appendices, the background for the selection of scenarios as well as infection-reducing measures are described and SSI's health professional assessments are explained in more detail.

The risk assessment is coordinated with DK-VET, just as the National Board of Health and the Danish Agency for Patient Safety have had the document in brief consultation.

¹ [Risk assessment of human health by continued minkavl_03112020 \(ssi.dk\)](#)

² [Health professional assessment of the risk to human health in the event of a resumption of mink teams after 2021 \(ssi.dk\)](#)



2. Delimitation and reservations

This risk assessment is limited to focusing on three main types of risks that the resumption of mink farming in Denmark could potentially entail for humans:

- Special occupational risk for mink workers, including assessment of the probability and consequence of infection among mink workers in a re-established occupation
- Additional societal infection, including assessment of what the probability is of infection between mink and humans gives rise to further societal infection, e.g. in the form of new local human outbreaks as well as assessment of the possible consequence of further societal infection
- Development of new virus variants, including assessment of the probability of the emergence of a new concern variant (Variant Of Concern (VOC)) in mink and assessment of the consequence of a new VOC arising in mink.

In addition, the effect of various infection prevention measures is assessed.

The risk assessment is based on the resumption of limited mink production in Denmark during 2023. This is about 15, 30 (most realistic in 2023) or possibly up to 100 herds over a longer period with an average of 8,500 mink, 2-3 employees associated with each herd and geographical distribution of the herds, cf. estimates in the veterinary assessment of risk-reducing measures associated with SARS-CoV-2 and teams of mink.

If this geographical distribution is not maintained, there is an increased probability of local outbreaks.

In addition, the following three scenarios for the covid-19 pandemic in Denmark form the basis for the answer:

- Pandemic scenario 1: Omikron is still the dominant virus line, but changes in viruses cause different subvariants to be in circulation
- Pandemic scenario 2: Reintroduction of a virus-like virus line
- Pandemic scenario 3: Introduction of a new VOC

Scenarios 1 and 2 are an endemic condition with minor or major changes in infection, while pandemic scenario 3 is a more unpredictable scenario that could potentially have significant consequences for public health regardless of resumed mink keeping. The three pandemic scenarios as well as scenarios for future mink teams are described in more detail in Appendix 1.

There is basically great uncertainty about how the pandemic will develop in the future solely in relation to the development in the population's immunity and the development in infectivity and severity of different variants of SARS-CoV-2. Resumption of mink keeping in Denmark will, all other things being equal, introduce an additional uncertainty factor in relation to the risk of a new COVID-19 epidemic development in Denmark.



In order to assess the likelihood of the three pandemic scenarios of mink-human infection as well as further societal infection, SSI experts have assessed the likelihood of SARS-CoV-2 spread via relevant transmission routes based on new literature knowledge and 2020 experiences. as a starting point given as a probability interval in percent. The size of the interval indicates the uncertainty associated with the assessment. This is followed by a more qualitative assessment of the consequences this may have for public health. The overall risk to public health thus becomes an assessment of both probability and possible consequences. Similarly, selected infection control measures have been assessed and their effect on the likelihood of infection between mink and humans is also given as a percentage range of probabilities.

In general, the risk to human health will vary depending on the extent and the specific organization of mink herds as well as - not least - the development of the epidemic, and how well the spread of human infection is controlled. Uncertainties in both projections of the epidemic's development, size and organization of mink production, as well as the effect of infection-reducing measures, mean that the risk assessment is subject to considerable uncertainty, which will naturally increase over the years. It is particularly difficult to estimate the development of population immunity over a long period of time, as this presupposes knowledge of how much immunity decreases over time, and including whether there are differences between immunities acquired through vaccination, natural infection or both. There is still very limited knowledge about this in terms of protection against the currently dominant omicron variant. This uncertainty about immunity will apply even more to any new variants.

SSI therefore reserves the right that the situation from 2023 may be significantly different from the described scenarios on which the risk assessment is based, and further draws attention to the fact that a revised risk assessment may be needed if significant changes occur in the epidemiological situation or major deviations from the scenarios described.



3. Summary

The following is a summary of SSI's assessment within the three types of risks as described above. These are answered on the basis of the above three pandemic scenarios as well as scenarios for mink herds in Denmark after 2023. Furthermore, the effects of a number of infection prevention measures are summarized.

Special business risk for mink workers In

In the stated scenarios for mink teams in Denmark from 2023, the number of people with direct contact with mink is expected to be low. It is estimated that between 30 and a maximum of 300 employees plus a number of employees in fur series, as well as veterinarians, consultants and others, could be infected directly from mink herds, given that the minks have previously been infected.

Without preventive measures, SSI estimates that the probability of an infected employee infecting a susceptible mink herd with SARS-CoV-2 is 80-100%, while the probability that an infected mink herd will be able to infect employees is in the range of 40 -90% depending on the pandemic scenario. Thus, there will be an occupational risk associated with working with SARS-CoV-2 infected mink. The risk of serious illness varies with the relevant pandemic scenario, but will - unless a new VOC is developed in the current mink herd (see below), everything else being equal, will be the same as for infected in the rest of the population.

Additional societal infections related to mink, i.a. in the form of new local human outbreaks

It is SSI's assessment that without preventive measures, there is a likelihood of further societal infection with SARS-CoV-2 related to mink in intervals between 20-90% depending on the pandemic scenario. In practice, the significance of this societal infection for public health will be limited. This is because continued high protection against serious illness, obtained through both vaccination and infection, is expected. The possible infection between mink and humans in future production will thus be significantly less than in 2020 (expected 15-30 in 2023, possibly 100 mink herds over a longer period, against 1,150 mink herds in 2020). This means that far fewer employees have contact with mink with a consequent smaller extent of the spread of mink-associated virus in society.

This is especially true in the first two pandemic scenarios, where relatively high population immunity and protection against serious illness can still be expected.

In a pandemic scenario 3, with a new and unknown variant of SARS-CoV-2, however, there is greater uncertainty in the assessment, as the status of cross-immunity to vaccines and previous infection is unknown, and the same will be the case for the risk of serious disease. The risk assessment in Pandemic Scenario 3 will be as described above in cases where the protection against serious illness is good, either by cross-immunity or low virulence in dominant virus lines. However, in the event of a lack of vaccine coverage, low immunity and a high risk of serious illness, where restrictions in society may again become necessary for epidemic control, infected mink herds may risk giving rise to a relatively larger proportion of those infected in society.



Development of new virus variants in mink herds

In all three pandemic scenarios, it is likely that with any limited mink production in Denmark, virus variants in mink will be identified if they are infected, and SARS-CoV-2 infection in mink will not be limited or controlled effectively. It is very difficult to estimate an exact probability of a VOC occurring in mink. This is because so far no new VOCs have been identified in mink since the start of the covid-19 pandemic, and there are a number of uncertainties about how many minks have actually been worldwide. In a worst-case scenario, SSI estimates that the probability of a VOC per year at 15, 30 and 100 mink herds respectively are less than 0.5%, 1% and 3.5% per year. Overall, the probability can be characterized as low and assumed to be significantly less than the probability that these will occur in a world population of 7.9 billion people in a situation of global spread of infection and limited restrictions. Similarly, it must be taken into account that in the scenarios described, it will be a smaller proportion of the world's total number of mink found in Denmark, so the probability that a possible VOC arising in mink should occur in Denmark is low. In addition, the risk can be further reduced by infection prevention measures, as described in this assessment and in the veterinary risk assessment.

Although the probability of a VOC based on a limited Danish mink breeding is assessed to be low and can be mitigated to a large extent, the consequence can be large, and globally include reduced infection, disease and epidemic control via vaccines, if this happens.

Infection prevention measures

Infection prevention measures could help to limit, but not eliminate, human-mink infection, further societal infection and the development of new virus variants, thereby reducing the risk to human health. Specifically, vaccination of mink and fur workers, regulation of the number of people who have contact with mink, correct and consistent use of protective equipment and other hygiene measures, as well as daily testing of employees with subsequent isolation in case of positive testing are assessed to support this. In several of the areas, however, considerations must be made about legal basis, proportionality. The experience from 2020 was that the infection prevention measures introduced at that time could not slow down the spread of infection. Therefore, the full effect of the measures will presuppose that a more effective implementation and compliance of the infection prevention measures can be implemented.

Reference is also made to the veterinary risk assessment Assessment of risk-reducing measures associated with SARS-CoV-2 and teams of mink, which also assesses a number of measures aimed at the organization of the mink breeding.



4. Assessment of risk to human health by resumed mink herd from 1 January 2023

The following section describes SSI's assessment of the risk to human health in the case of resumed mink herds from 1 January 2023. For the three pandemic scenarios, the probability and consequence of resp. 15, 30 and 100 reintroduced mink herds (of 8,500 animals) from 2023 will result in resp. a particular occupational risk for mink workers, further societal infection and the development of new virus variants in mink herds.

For further elaboration of the professional basis and the assessment of infection between mink and humans, see Appendix 2.

4.1 Special occupational risk for mink workers

For the three defined pandemic scenarios, SSI estimates that without implemented infection control measures related to employees and mink, there is between 80 and 100% probability that SARS-CoV-2 will spread from an infected employee to a susceptible mink herd.

It is estimated that the probability of an infected mink herd spreading SARS-CoV-2 to a susceptible employee in the same mink herd is between 40 and 80% for pandemic scenario 1, between 50 and 90% for pandemic scenario 2, and between 60 and 90% for pandemic scenario 3.

The likelihood of mink being infected by humans depends on the incidence of SARS-CoV-2 in the population, as the incidence in employees and others who come into contact with mink can be assumed to be the same as in the population as a whole, as long as is not an ongoing outbreak in mink.

Due to the expected low number of mink herds in 2023 (expected 15-30 in 2023, possibly up to 100 over a longer period, of 8,500 animals), the total number of people who can be infected with SARS-CoV-2 from mink herds will be low. The veterinary risk assessment estimates that the required number of employees in a mink herd of 8,500 animals is approx. 2-3 people. Based on this estimate, between 30 and a maximum of 300 employees plus a number of employees in fur series, as well as veterinarians, consultants and others, could be infected directly from mink herds, given that the minks have previously been infected.

The health consequences for individual employees in a mink farm depend on the circulating variant and the person's susceptibility to infection.

For pandemic scenario 1, where the omicron variant is dominant and the immunity of the population is high, it is estimated that infection from mink to mink employees will occur, but that the health consequences of being infected are limited, due to the low risk of serious disease.

In pandemic scenario 2, where the delta variant is reintroduced, cross-immunity is unknown, but a good effect of the current vaccines is still expected. However, as we see declining vaccine immunity over time, infection from mink to mink employees is expected, which can result in serious illness.



In pandemic scenario 3, where both cross-immunity and vaccine immunity are assumed to be limited, infection from mink to mink employees will most likely occur.

The consequences depend on the infectivity of the variant and its ability to cause serious illness.

This means that for all scenarios there is a high probability of occupational infections in mink production and on fur series if the minks are infected with SARS-CoV-2. However, the number of potentially infected is significantly lower than before, corresponding to the lower number of herds and the total number of employees in mink production.

4.2 Additional societal infection related to mink

The probability that the virus spreads from an infected herd, via infected employees, to the population in the local area, is assessed to be resp. 20-40%, 30-80% and 60-90% for the pandemic scenarios 1-3. SARS-CoV-2 will spread from employees to close contacts in the same way as the viruses that are already circulating among humans. The contribution of infection from employees in the mink industry to the total infection in society is expected to be much smaller due to a persistent endemic spread of infection between humans.

For pandemic scenario 1, the health consequences of spreading the virus from mink via employees are assessed at 15, 30 and possibly up to 100 herds to be limited in size and health risk, given the high population immunity and the low risk of serious illness. Furthermore, infection in the population with mink virus is likely to account for only a very small proportion of the total number of cases of infection in the community.

For pandemic scenario 2, the introduction of a delta-like variant could also lead to local outbreaks, but the extent - and also the number of cases of serious illness - will depend on the vaccine immunity in the population. As the number of people employed in the mink industry is limited, the number of people involved in the local outbreaks and infection chains is expected, as well as the number of people with any serious illness, also to be low.

For pandemic scenario 3, the consequences will depend on the infectivity of the variant and its ability to cause serious illness. If a new type of virus in pandemic scenario 3 entails a high risk of serious illness, waiting time for an effective vaccine, and at the same time there is low immunity in the population, there is a risk that closures and restrictions for a period will be the only way to keep the epidemic at bay. control. In such a scenario, an initial rising infection pressure will increase the likelihood of mink herds becoming infected and further infection from mink herds.

If, due to the spread of infection among humans, it is deemed necessary to carry out closures or other infection control measures in society that reduce the pressure of infection, infected mink herds may risk giving rise to a relatively larger proportion of those infected in society. This was the case in 2020, when an estimated DKK 3 million mink was infected in the same time period as approx. 300,000 people were infected. Thus, in a situation such as in 2020, mink could pose a more significant risk of the spread of infection and disease, if preventive or control measures in mink production are not followed up at the same time. However, the situation in 2023 will not be directly comparable to the epidemic in 2020, where the number of mink was about 10-50 times greater and the population immunity very limited.



In 2020, it was estimated that between 4,300 and 4,950 people were infected with the mink variant line, B.1.1.298. B.1.1298 was also detected in 255 of the 290 infected mink herds. Thus, each infected herd gave rise to between 16 and 20 cases of SARS-CoV-2 in humans on average, of which on average approx. two were registered as affiliated with a household with mink production. Some of the main uncertainties were that more herds than the 290 were infected, that there were shutdowns to varying degrees during the outbreak, which are believed to have a preventive effect on the community infection, and that the virus type was less contagious than the subsequent virus types. Conversely, today there is a much higher population immunity, where in particular the relative risk of serious illness is significantly lower than in 2020.

Assuming that up to 20 people can be infected by each infected mink farm, there will be a maximum of 2,000 infected in the community during the time it takes for SARS-CoV-2 to spread to the maximum of 100 mink herds. This roughly corresponds to the number of people registered as PCR-positive during 2-3 days in Denmark in the spring of 20223 . Thus, it is SSI's assessment that infected mink will have a very limited impact on the number of infected in the overall current infection picture.

The maximum number of infected people with mink virus in society is thus estimated to be significantly lower in 2023 than in 2020, and the relatively few employees in mink production will make it easier to introduce special measures that can help prevent the spread from mink to the surrounding community, through the employees.

4.3 Development of new virus variants in mink herds

ECDC categorizes virus variants into three categories; Variants of Concern (VOC), Variants of Interest (VOI) and Variants under Monitoring (VUM). A VOC is defined as a variant where there is evidence suggesting a significant impact on infectivity, severity and / or immunity that is likely to have an impact on the epidemiological situation. And VOI

is defined as a variant for which there is preliminary evidence or evidence encumbered with great uncertainty that may indicate a significant impact on infectivity, severity and / or immunity, which may have an impact on the epidemiological situation. A VUM is a variant that may have properties similar to a VOC, but where the evidence is weak or has not yet been assessed by ECDC⁴ . It is important to note that the number of VOIs and VUMs is large in relation to the number of VOCs. Thus, there are a large number of variants that are monitored internationally without these ending up having an impact on the epidemic development as a whole.

Just as mutations can occur through the spread of infection between humans, this can happen through the spread of infection between humans and animal populations, including mink, as mutations occur continuously over time when the virus replicates. When SARS-CoV-2 virus changes in a new host, mutations often occur in key areas of the spike protein, as was seen with mink in 2020^{5, 6} , also see Appendix 2.

Applicable to all three pandemic scenarios and assuming that mink is infected with SARS CoV-2, SSI estimates that there are approx. 66-90% probability of developing a VOI or VUM in

³ (ForsideDB.arcgis.com)

⁴ <https://www.ecdc.europa.eu/en/covid-19/variants-concern>

⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7853580/>

⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8267889/pdf/fmicb-12-698944.pdf>



mink, which will have to be followed closely. This will be examined and followed, and if it turns out that it is more contagious, more immune-resistant and more disease-causing, it may be elevated to a VOC.

It is very difficult to estimate an exact probability of a VOC occurring in mink.

This is based, among other things, on the fact that no new VOCs in mink have been identified so far since the start of the covid-19 pandemic, and there are a number of uncertainties about how many mink there have actually been worldwide. Assuming that there have been an estimated 70 million mink years since the beginning of 2020, an upper 95% confidence limit for an estimate of 0 VOC over the period can be estimated, for example, on the website statskingdom.com. This gives an upper 95% - safety limit around the estimate of 0 (no) VOC for the probability of developing a VOC in the Danish mink production over a year given different scenarios:

- 15 herds, 127,500 mink and 96,000 mink conditions: less than $0.5\% \cdot 30$
- herds and 255,000 mink and 192,000 mink conditions: less than 1%
- 100 herds and 850,000 mink and 638,000 mink conditions: less than 3.5%

It is noted that the use of the upper safety interval is an absolute worst case scenario, and it is therefore SSI's assessment that the probability can be characterized as being low. The probability of a VOC in Danish mink is also considered to be significantly less than the probability that these will occur in a world population of 7.9 billion people in a situation with global spread of infection and limited restrictions and the risk can be further reduced by infection prevention measures, as described in this assessment and in the veterinary risk assessment.

It is likely that viruses in a shift from one host to another will adapt to the new host. Assuming a numerically strong reduced Danish mink breeding, there is a low probability that this shift will give, to rise to a VOC that challenges human health low, as 1) empirical evidence tells us that a VOC is an unusual event in relation to the widespread infection globally is with SARS-CoV-2 among humans and 2) a virus that adapts to mink and possibly on to other animal hosts will only with low probability be competitive with the human-adapted variants.

A possible, hypothetical scenario is that a possible adaptation to mink can provide an adaptation to additional hosts in the animal kingdom, and thus there may be a spill-over from mink to other animals, and that this may in the long run provide further opportunity for zoonotic spread. These hypothetical scenarios are difficult to quantify. Overall, however, it is estimated that a reintroduction of mink in Denmark will only have a marginal effect on the global risk of such a change in SARS CoV-2.

Despite the fact that in the described scenarios it is assessed that there is a low probability that a VOC can occur in mink, the consequences can be great, and include reduced infection, disease and epidemic control via vaccines, if this happens.



5. Assessment of infection prevention measures

Overall, it will be possible to reduce, but not eliminate, the likelihood of human-mink infection. In June 2020, the first mink herd was infected under a historically low infection pressure in North Jutland. The likelihood of infection between mink and humans is increased by declining immunity, high incidence in society, and high infectivity in viruses. It is further noted that in 2020 it was not possible to curb the infection between mink farms despite a strong focus on and intensive experiments with infection prevention measures.

Implementation of effective preventive measures in relation to employees and mink will be able to reduce the number of employees who can infect mink and thus also the number of mink herds that can infect back to employees and on to the population. At the same time, the likelihood of emergence of variants of concern will be further reduced when infection of mink with SARS-CoV-2 is significantly limited. Regular PCR tests of mink and staff, combined with sequencing of positive samples and establishment of variant PCR against any mink-associated virus lines / mutations at relevant times and in relevant sections of the population), will help monitor new virus variants and their spread.

The following is an account of SSI's assessment of how a number of relevant infection prevention measures for employees in the mink industry and in the mink herds - can contribute to reducing the risk to human health, as described above.

However, based on the experience from 2020 that the infection prevention measures could not slow down the spread of infection, it is absolutely crucial that the measures are fully implemented and complied with in order to have the intended effect.

5.1. Testing of employees

- **Daily PCR testing of employees:** It is SSI's assessment that daily PCR testing after working hours, with response the next morning before the start of working hours, followed by isolation with a positive response, will be extremely effective in minimizing the likelihood of SARS CoV spread. 2 between employees and mink (from about 80-100% to about 4-8%) and between employees and the population (from about 20-90% to about 1-3%) for all pandemic scenarios, at full compliance. The test method will make it possible to monitor mink-associated virus variants in employees if register-based monitoring is established.
- **Daily antigen testing of employees:** It is SSI's assessment that daily antigen testing of employees before the start of working hours, followed by isolation with a positive response, could reduce the likelihood of spreading SARS-CoV-2 between employees and mink from approx. 80-100% to approx. 24-50%, and between employees and the population from approx. 20-90% to approx. 6-20% for all scenarios at full connection. The test method will only be able to monitor mink-associated virus variants in employees if it is combined with confirmatory PCR testing and WGS. Thus, questions about whether mink-associated viruses infect humans (employees and communities) will not be answered.
- **Daily antigen test combined with two weekly PCR tests:** It is SSI's assessment that daily antigen tests of employees, combined with two weekly PCR tests, followed by isolation with a positive response, are assessed to have an effect that lies between the two



the above. The test method will enable monitoring of mink-associated virus variants and infection chains by routine full-genome sequencing, if register-based monitoring is established. The method is considered to be easier to establish and carry out than daily PCR testing and will help to ensure effective coverage of infection chains.

These and other test regimes must be considered in relation to practical feasibility and with the involvement of other authorities, including the Danish Working Environment Authority, as well as the extent to which adherence to a given test regime can be expected in practice. Experience from the health and elderly area, where there have been calls for frequent testing throughout a large part of the pandemic, shows that in practice it is difficult to achieve adequate frequency, connection and quality assurance of both testing and self-isolation.

Requirements for testing and establishment of register-based monitoring will require clarification regarding establishment of legal authority and otherwise considerations of proportionality of the measure.

5.2. Vaccination of employees

- Vaccination of employees: It is SSI's assessment that vaccination of employees for Pandemic scenarios 1 and 2 could reduce the likelihood of SARS CoV-2 spreading between employees and mink from 80-100% to 40-60% and between mink and employees from 40-90% to 30-70%. At the same time, vaccination will reduce the risk of serious work-related illness. For pandemic scenario 3, it is SSI's assessment that there will be a limited effect of vaccination in relation to infection, as in this scenario with a new variant it is assumed that there is no available, variant-updated vaccine. Requirements for vaccination will require clarification regarding legal authority and considerations of proportionality, including whether vaccination with the goal of maintaining mink herds is within the approval basis for vaccination.

5.3. Hygiene measures

- Behavior-regulating hygiene measures: It is SSI's assessment that hygienic measures understood as behavior-regulating measures that reduce the likelihood of infection, eg use of facial protection products and hand hygiene, will have a significant effect on the probability of spreading SARS-CoV-2 between employees and mink. and employees, for all pandemic scenarios. This presupposes that the protective equipment is available, and prior training and supervision is established, and full compliance can actually be ensured.
The probability of spreading from employees to mink and from mink to employees changes from resp. ca. 80-100% and 40-80% to respectively. ca. 5-25% and 5-10% when implementing behavior-regulating hygiene measures with full compliance in scenario 1, and correspondingly significant reductions are seen in the other scenarios (Table B2). Use of protective equipment without training and supervision, on the other hand, has virtually no effect on the likelihood of SARS-CoV-2 spreading between mink and humans.

5.4. Restrictive access to mink herds

- Restrictive access to mink herds: It is SSI's assessment that restrictive access to mink herds, so that only a few people move in the herd,



will be an effective measure if it can be implemented effectively. Especially if it is ensured that employees do not work in mink herds at different addresses. The fewer people who have access to a mink herd, the less likely it is that SARS-CoV-2 will spread between mink and humans. The probability of spreading SARS-CoV-2 to mink will depend on the number of people in the herds and the probability that they are infected, corresponding to the infection pressure in the population.

5.5. Infection prevention measures in mink herds

Infection prevention measures in mink herds: These are assessed in the veterinary risk assessment. It describes a number of different infection prevention measures related to mink. Among other things, it has been estimated that vaccination of mink will reduce the likelihood of infection to the individual mink from humans, as well as reduce the spread of SARS-CoV-2 between mink on a herd. Furthermore, early detection of SARS-CoV-2 in mink herds, followed by handling of infected herds, could reduce the transmission of mink to humans. For further information on the effects of infection prevention measures, refer to the veterinary risk assessment.