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CORONAVIRUS DISEASE 2019 UPDATE (445): ANIMAL, NETHERLANDS, DENMARK, MINK, SPREAD, EPIDEMIOLOGY

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In this update:

[1] Netherlands: update, epidemiology

[2] Denmark (North Jutland, Mid Jutland, South Jutland): spread

[1] Netherlands: update, epidemiology

Date: Wed, 14 Oct 2020 16:06 CEST

Source: Volkskrant [in Dutch, trans., edited]

<https://www.volkskrant.nl/nieuws-achtergrond/2-6-miljoen-nertsen-zijn-vergast-vanwege-corona-wie-of-wat-bracht-het-virus-naar-de-fokkerijen~ba3f1beb/>

More than half of the mink sector in the Netherlands has been wiped out since the outbreak of COVID-19. And despite all the measures, it just doesn't stop. Who or what infects all those mink farms?

Despite all the stricter hygiene and other corona control measures, the number of infected mink farms in the Netherlands continues to rise steadily. Last week (6 Oct 2020), the Ministry of Agriculture announced the 63rd and 64th contaminations: 2 mink farms in North Limburg [as of 16 Oct 2020, the total number is 67]. This means that more than half of the mink sector in the Netherlands has already been wiped out by corona -- in April 2020 (before the culls), Statistics Netherlands counted 110 companies with over 700 000 mother animals. More than 440 000 mother animals and approximately 2.2 million puppies (young) have now been gassed due to corona.

The infection foci in the mink sector do not seem to be extinguished. How is that possible?

The Ministry of Agriculture and experts from the 'Outbreak Management Team Zoonoses' have been puzzled about this for months. A 'consortium of partners' is researching this, consisting of epidemiologists from Utrecht University, virologists from Erasmus University Rotterdam, bioveterinary experts from Wageningen University, employees of the Animal Health Service in Deventer, and the Netherlands Food and Consumer Product Safety Authority (NVWA) in Utrecht. The Faculty of Veterinary Medicine, Utrecht University, is the project leader.

Some representatives of D66 ["Democrats 66", a social-liberal political party in the Netherlands], animal activists, and other critics of the mink sector have suggested that the mink breeders intentionally contaminate their farms themselves. Because the prices of the pelts on the world market are so low that it would be financially attractive to have your company culled and to collect a clearance fee from the government.

It is true that the clearance fee may be higher than the market price, although it is difficult to determine at this point. On the other hand, entrepreneurs can also keep the mink pelts for several years in anticipation of better market prices. Moreover, during a culling, not only the puppies (who supply the fur) but also all mother animals are killed. As a result, all the breeding lines that breeders have built up over the years or even decades are destroyed at once.

The researchers rule out intent by mink breeders. The Utrecht veterinary epidemiologist Francisca Velkers has regularly sat with them at their (virtual) kitchen table in recent months. "Those people are all upset," she says. 'Their breeding line is suddenly broken after decades. Even though they have to stop by 2024 anyway, they thought they could still produce beautiful furs for a few more years.'

Her colleague Lidwien Smit also points to Denmark, where 51 mink farms have now also been infected. 'There is not even any clearing in Denmark, so there is no financial incentive there', she says. "The Danes have the same questions as we do." It was only this month [October 2020] that the Danish government decided to proceed with culling [see item 2 below].

Minister of Agriculture Carola Schouten also has no indication of intent but has the intelligence and investigation service IOD still investigate this. The umbrella of mink breeders, NFE, indignantly rejects any suggestion of intent, but also raises the question of whether they are not animal activists behind the infestations. According to the NFE, 'suspicious' persons or cars have been reported at several breeding farms -- the spokesman underlines that he does not want to accuse anyone, but wants the government to investigate this too.

Researcher Velkers also does not think that animal activists are behind the infections. 'There is also the question of how you can deliberately infect a company with corona,' she says. 'It's not a shot of virus that you just spray on the head of a mink. Then an activist would first have to break into an infected company to take the virus to another company -- and thus break in again. But as long as we don't have a satisfactory alternative explanation for the spread, you will continue to hear this kind of speculation,' says Velkers.

In fact, in the research into possible contamination and transmission routes, it has been a question of ticking off. At a significant part of the companies, through interviews and consulting documents and registers, it was investigated which recent contacts there were that could explain the contamination. Food, vehicles, pets, and feral cats on farms, materials used, and even air transmission have been looked at. All those research trials have not yet yielded any results or indications, but the research is still ongoing. 'This means that humans probably remain the most important source of distribution between companies,' concluded the Outbreak Management Team Zoonoses.

A detailed analysis of the outbreak among the first 16 mink farms showed that at least 66 employees and owners (and 11 feral cats) had been infected through their mink -- they had the same 'mink' variant of the virus as the animals. The team of virologist Marion Koopmans (Erasmus MC) discovered 5 clusters (types) of the 'mink virus'. This indicates that the virus has already passed from humans to mink at least 5 times in the beginning.

The researchers paint a picture of a bubbling culture vessel: a human infects a mink, which subsequently infects many other minks -- mustelids are very susceptible to the virus. Those minks then infect other people and stray cats in the company. 'In the tree of branches the source is people,' says Velkers. "Then it jumps from animal to animal, and sometimes back to humans."

In the beginning, however, the source and contact investigation were hampered by the poor registration of the employees, partly consisting of migrant workers who often live temporarily in the mink farmyard and sometimes rotate between companies during busy work. This made it difficult to map out contacts between companies. 'Some employees were only known by their first name,' says Smit. "Others had long since returned to Poland."

It was also found that several employees did not always observe the hygiene rules as closely, such as wearing a mouth mask. 'In warm weather, they sometimes stayed off or hung under the chin', says Smit. After tightening up hygiene protocols and persistent infections, this did improve. It is remarkable that the infected employees and owners did not infect other people in the vicinity of the mink farms. 'Infected residents in the same postcode area of an infected mink farm did not have the same type of mink virus -- they

had different variants', says Velkers. 'So, it doesn't spread beyond the companies. It stays in the mink world'.

Yet it is still too early to put the blame mainly on workers. Because the mink season has some busy work periods, such as when the puppies are born in May, the vaccination in June [against mink diseases], and the weaning afterward. During these activities, employees come into closest contact with the animals. 'It will all be ready by the end of July, there is only feeding and all we have to do is wait for the fur in November,' says Velkers. "We are now at the end of September and new infections are still being reported."

She has been to companies that had been in lockdown for weeks and had sent their employees home. 'Those mink farmers assured me: we really didn't see anyone. And yet suddenly there is the virus', says Velkers. 'Many companies are now closing down because the pelting will start in November,' agrees colleague Smit.

Another uncertain factor: the same 'mink variant' of the virus was not always found at different infected companies of the same owner (where the same employees may also be active). For example, the virus found at several companies of a mink breeder in East Brabant belongs to 3 different variants. Also, companies that are right next to each other turned out to have very different clusters.

"We are trying to understand what is going on with the mink," says Velkers. "But our previous theories keep failing."

According to the researchers, the "most likely explanation for the last cases being investigated," is the following: the virus may have been introduced via humans during the busy period and is only now breaking out in full force in the mink barn. 'It may be that the virus has been simmering for a long time in companies that became infected now and last month [September 2020],' says Velkers. 'It hangs around somewhere or sits quietly in a corner and is only now reaching out to full extent.' Her colleague Smit: 'It could be that in July infection started on companies that we are only now picking up.'

But where and what does the virus hide in them? 'We are now taking samples from more animals across the entire farm to see whether the virus may have been present locally for some time,' says Velkers. It may explain the ongoing series of infections in the mink sector, despite all the hygiene and other measures that mink breeders say they have taken -- at the end of August [2020], the rules for the sector were further tightened.

Still, the question remains why the virus mainly strikes in East Brabant and North Limburg. It is true that this is a concentration area with most of the mink farms -- all 17 companies in the former mink capital of Gemert-Bakel have now been cleared. But the breeders in the rest of the Netherlands have been spared for the time being. Have they improved their hygiene measures or were they just lucky? In Denmark, too, a large number of companies close to each other have become infected locally, while the rest of the country has remained free [see item 2 below].

'The whodunnit has not yet been resolved', concludes Velkers. "The investigation continues."

[Byline: Peter de Graaf]

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<promed@promedmail.org>

[HealthMap/ProMED map of the Netherlands: <https://promedmail.org/promed-post?place=7873326,104>]

[2] Denmark (North Jutland, Mid Jutland, South Jutland): spread

Date: Mon 19 Oct 2020 [accessed]

Source: Danish Veterinary and Food Administration (DVFA) [in Dutch, machine trans., abridged, edited]

<https://www.foedevarestyrelsen.dk/Leksikon/Sider/Kort-over-screening-af-COVID-19-i-mink.aspx>

Map of study for COVID-19 in mink

Interactive map of Denmark with an overview of the Danish Veterinary and Food Administration's study for COVID-19 in mink.
[continuously updated, accessed on Mon 19 Oct 2020]

1. North Jutland: Hjørring (37 holdings), Frederikshavn (25), Jammerbugt (18), Brønderslev (8), the Island Laeso (3), Aalborg (7) and Vesthimmerlands (2).

2. Mid Jutland: Ikast-Brandø (1), Ringkøbing-Skjern (2).

3. Southern Jutland: Vejle (1), Esbjerg (1).

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[The total number of infected mink holdings in Denmark, as of 19 Oct 2020, is 105, spread in 7 of the 11 municipalities of North Jutland region, in 2 of the 19 municipalities of Mid Jutland region and in 2 of the 22 municipalities of Southern Denmark region. The total number on 13 Oct 2020 was 76, all within 6 of North Jutland's municipalities (20201013.7858915). The reason(s) for the steep increase in the number of infected holdings within the infected North Jutland region and into 2 additional main regions (out of a Denmark's total of 5), in spite of the severe measures undertaken by the DVFA, is yet to be clarified. Official details of the Danish revised control policy and culling figures, are yet to become available. Denmark's last OIE update (No 4; see 20201004.7835635) was submitted on 1 Oct 2020; at that time, culling was not yet applied nor plans disclosed.

The rich Dutch experience, presented in item 1 above, illustrates some of the difficulties in controlling COVID-19 in farmed minks and in identifying the mode of its spread. Netherlands applied a culling policy from the early phase of the event, mainly for zoonotic considerations, and has decided to discontinue mink farming altogether. Prior to COVID-19's entrance this closure was planned for 2024; recently, in view of the disease situation in the farms and the consequent culling, the Dutch parliament supported accelerated closure, at the latest in May 2021. On 19 Oct 2020, this decision was officially notified to the EU (Notification Number: 2020/657/NL, Nederland).

Denmark, where COVID-19 was 1st discovered nearly 2 months after the start of the Dutch event, is a leading global mink-fur producer. As recently reported by the Dutch CVO (20201013.7858915) the 2 countries have undertaken cooperative efforts in the study of COVID-19 in their respective farmed mink industries. They deserve encouraging wishes for a successful, fruitful One Health initiative. -Mod.AS

HealthMap/ProMED map:

Denmark: <https://promedmail.org/promed-post?place=7873326,111>]

See Also

COVID-19 update (439): animal, Denmark, mink, spread, control 20201014.7861560

COVID-19 update (437): animal, Netherlands, Denmark, mink, spread, control 20201013.7858915

COVID-19 update (433): animal, Denmark (ND, MJ) farmed mink, spread, control 20201010.7851707

COVID-19 update (430): animal, USA (UT) mink 20201009.7847704

COVID-19 update (425): animal, Denmark (ND) farmed mink, spread, control 20201004.7835635

COVID-19 update (414): animal, Netherlands (LI), Denmark (ND), farm mink, spread 20200925.7813579

COVID-19 update (406): animal, Netherlands (LI), Denmark (ND), farm mink, spread 20200918.7794239

COVID-19 update (401): Netherlands (NB), Denmark, farmed mink, spread 20200914.7777661

COVID-19 update (394): Netherlands (NB) animal, farmed mink, spread 20200908.7759382

COVID-19 update (387): Netherlands, mink, animal & public health, research 20200902.7740793

COVID-19 update (382): Netherlands, animal, farmed mink, spread, control 20200830.7730463

COVID-19 update (376): animal, ferret, mink, comment 20200827.7721923
COVID-19 update (366): animal, USA (UT) mink 20200818.7692815
COVID-19 update (363): animal, Denmark (ND) Netherlands (NB,LI) mink, spread 20200817.7687830
COVID-19 update (340): animal, China, envir monitoring, Netherlands (NB), mink 20200801.7635820
COVID-19 update (334): animal, Netherlands, mink, spread, UK, cat, 1st rep, OIE 20200727.7617582
COVID-19 update (324): Netherlands (NB) animal, farmed mink, spread 20200719.7591013
COVID-19 update (317): Netherlands (NB) animal, farmed mink, spread 20200716.7578453
COVID-19 update (307): Netherlands (NB), Denmark (ND) farmed mink, spread, control 20200708.7553067
COVID-19 update (301): Denmark (ND) Netherlands (NB) farmed mink, spread, control 20200703.7536980
COVID-19 update (284): Denmark (ND) animal, farmed mink, spread, dog 20200624.7506728
COVID-19 update (281): Netherlands (NB, LI) farmed mink, spread, animal, global 20200623.7502849
COVID-19 update (266): Denmark (ND) animal, farmed mink, 1st rep 20200617.7479510
COVID-19 update (251): Netherlands (NB, LI) animal, farmed mink, spread, culling 20200610.7453845
COVID-19 update (248): Netherlands (NB, LI) animal, mink, spread, culling, cat 20200609.7446478
COVID-19 update (236): Netherlands (NB, LI) animal, farmed mink, spread, culling 20200604.7427849
COVID-19 update (230): Netherlands (NB, LI) animal, farmed mink, spread, control 20200602.7420433
COVID-19 update (215): Netherlands (NB) animal, mink-to-human, epidem., control 20200527.7385049
COVID-19 update (209): Netherlands (NB) farmed mink, animal-to-human, cat, epid 20200525.7375359
COVID-19 update (198): Netherlands (NB) farmed mink, animal-to-human infect susp 20200520.7359976
COVID-19 update (189): Netherlands (NB) animal, farmed mink, research, cat, dog 20200517.7344274
COVID-19 update (177): Netherlands (NB) animal, farmed mink, Spain (CT) cat susp 20200512.7328587
COVID-19 update (174): Netherlands (NB) animal, farmed mink, comment 20200511.7323845
COVID-19 update (169): Netherlands (NB) animal, farmed mink, spread, rabbit susp 20200509.7316646
COVID-19 update (154): Netherlands (NB) animal, farmed mink, research 20200503.7294846
COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology 20200501.7286113
COVID-19 update (135): Netherlands (NB) animal, farmed mink 20200427.7272289

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