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COVID-19 OUTBREAKS IN FARMED MINKS IN THE NETHERLANDS

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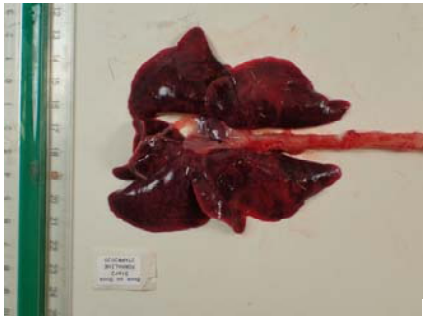
FOUR COVID-19 OUTBREAKS WERE DETECTED IN FARMED MINKS IN APRIL AND MAY

- History of infected humans (3/4)
- Asymptomatic to severe disease in minks
- Pneumonia
- Mortality 2-10%
- Mink to mink transmission
- High proportion (>90%) of animals with antibodies three weeks after detection



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VIRUS WAS DETECTED IN:

- CAGES, LITTER, WATER, FEED
- INHALABLE DUST IN THE HOUSES
- CATS

Virus was not detected outside the farms !

Mink to human transmission of SARS-CoV-2: Example outbreak NB3

Farmer notified clinical suspicion in minks

Outbreak NB3 confirmed. All persons tested negative

First person reported signs of respiratory disease

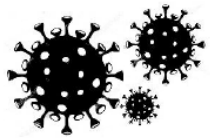
Two additional persons reported signs of respiratory disease

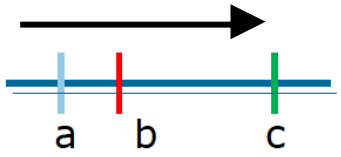
Mink and human derived viruses are genetically identical

6 May → **7 May** → **16 May** → **18 May**

Person positive in SARS-CoV-2 PCR

Persons positive in SARS-CoV-2 PCR





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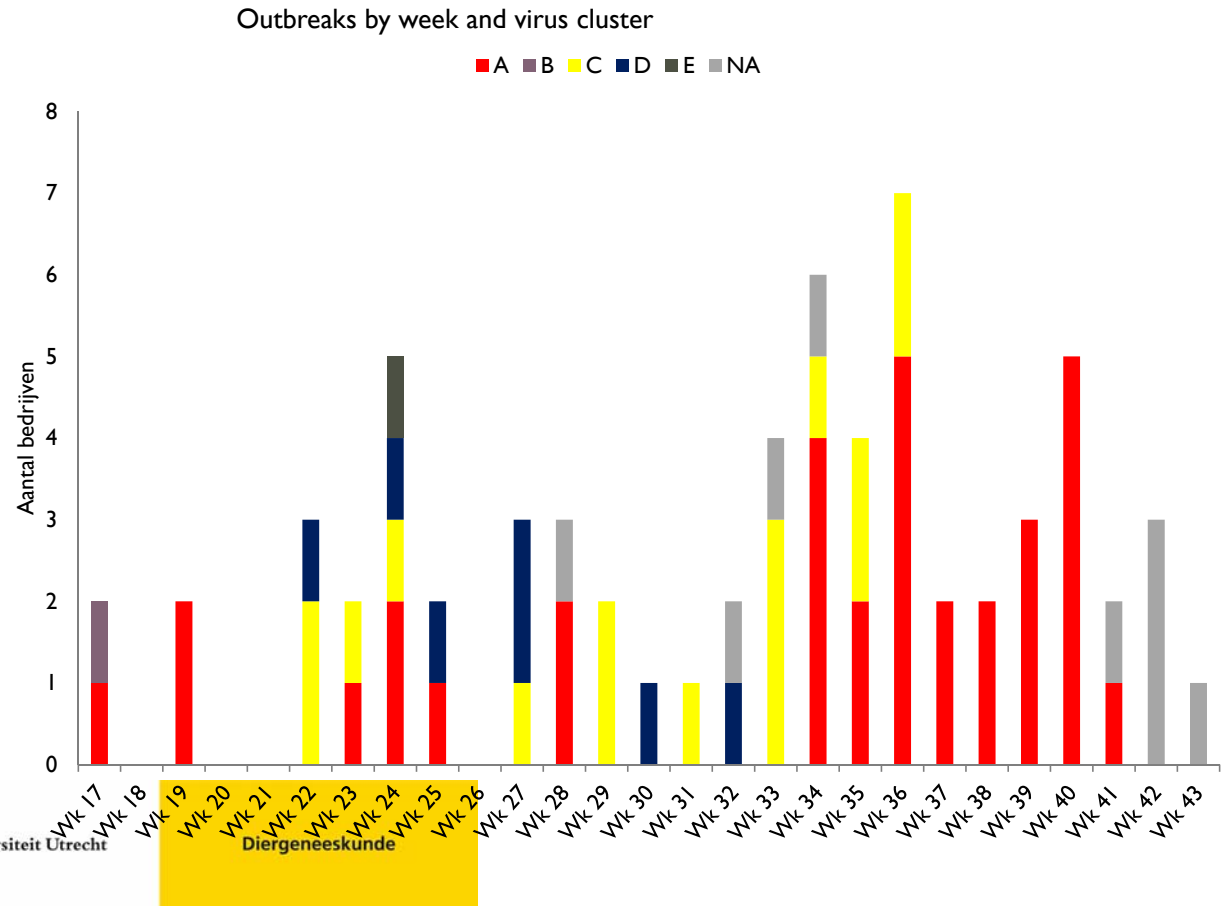
CONTROL MEASURES ON MINK FARMS

- Notifiable disease; respiratory disease, mortality
- No movements of minks and manure
- No visitors in mink sheds, strict biosecurity measures
- No contact with minks by Covid-19 suspected staff
- Culling of minks on infected farms
- Serological screening of all mink farms
- Weekly examination of dead mink on all farms
- PPE for mink workers on all farms
- End of mink farming by March 2021

DESPITE MEASURES OUTBREAKS CONTINUED

- 5 virus clusters indicating 5 separate virus introductions



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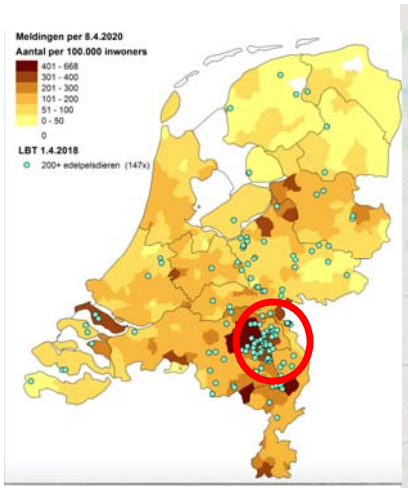
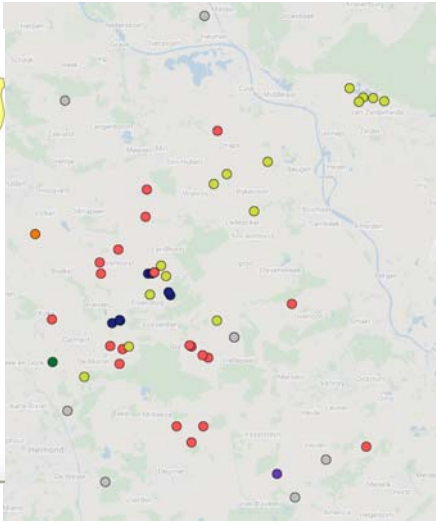
Epidemiological links:

Same owner, shared personnel (not always)

Spatial clustering, no obvious links with feed company, visitors or transport

66% of mink farm associated persons were infected





CONCLUSIONS

- Minks are highly susceptible to infection and Covid-19 severity in minks varies from asymptomatic to severe
- Initial virus introductions from humans
- Mink-to-mink and mink-to-cat transmission within farms
- Occupational exposure to SARS-Cov-2 virus in the farms resulting in mink to human transmission
- Risk of environmental exposure of humans outside infected farms appears to be negligible

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