



Ministry of Agriculture,
Nature and Food Quality



SARS CoV-2 infections of mink in the Netherlands

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Anamneses

- Respiratory and gastrointestinal problems in mink reported to AHS
- E-coli and pseudomonas excluded
- Tested for CoV2 because owners had COVID-like symptoms
- Cov2 positive at AHS and confirmed in Lelystad

- Farm 1 Milheeze:
 - Location 1 and 2: 13000 mink

- Farm 2 Beek en Donk
 - 7500 mink



Research protocol farms 1 and 2

Mink

- Disease history
- 20 dead or sick animals: pathology and virology
- 60 animals without symptoms, intervals 3 weeks: serology, faeces
- Characterisation of virus isolates

Environment

- Dust and air samples, weekly 3 times:
 - In stable
 - In surroundings / environment 0, 10 and 80 meter.
 - 6 and 30 hr sampling

Humans

- Personnel: disease history and characterisation of available isolates





Research protocol farms 1 and 2

Molecular epidemiology

- Characterisation of isolates
- Comparison of mink and human CoV2 isolate

Cats

- Cats on the farm: serology and virology



Measures

- Obligation for mink holders, veterinarians and research institutes to report signs resembling COVID-19 in mink
- No transport of animals or manure from the farm
- Precaution: no cycling or walking in zone of 400 meters



Results

Mink

- Pathology: severe pneumonia
- Nearly all samples dead and sick mink PCR positive, high virus load
- Faeces samples: 11/53 and 9/30 positive
- Serology: nearly all positive tested in VNT (one dilution, no titer).

Environment

- Air samples in barn 2/6, 1/6, 3/6 positive, low virus load
- None of the samples outside the barn positive
- Second sampling: all samples negative, inside and outside

Cats

- 3/11 seropositive but PCR negative



Results

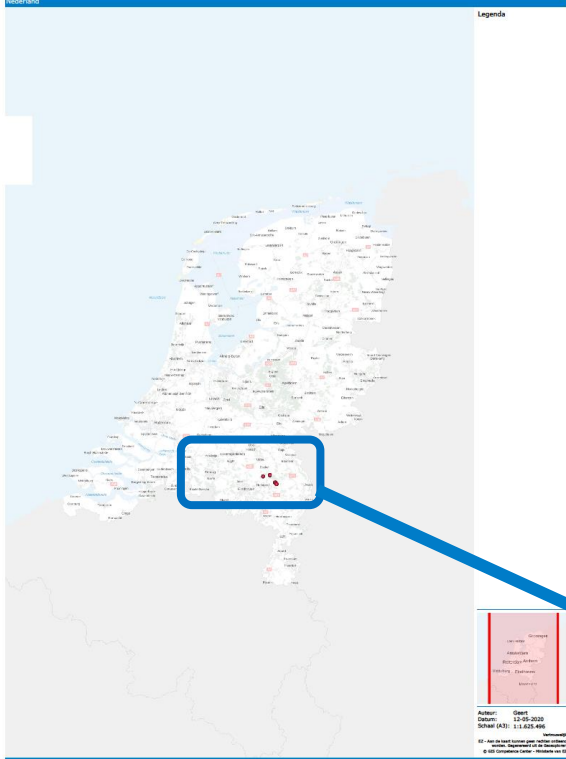
Molecular epidemiology

- Infections probably already more than 4 weeks on the farms
- Probably efficient mink to mink transmission
- No relation between both farms
- No relations to known CoV2 human isolates (so no spread out of the farm)

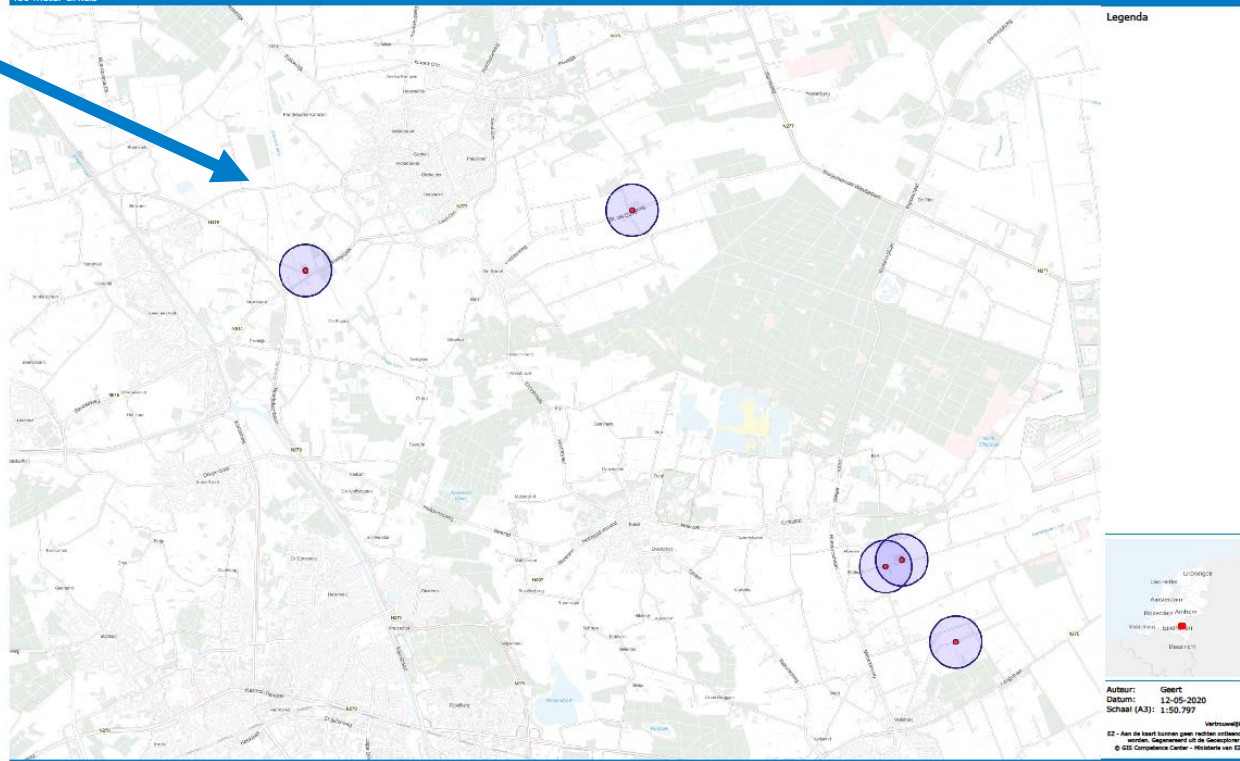


New development

- Location 3 of farm 1, 10.000 mink, also infected
 - No clinical signs reported
- Farm 3 Deurne: 1500 mink, same anamneses
- Same measures implemented



5 pos bedrijven Covid -19
400 meter cirkels





Some remarks

- Farm 1/ location 3 did not show symptoms but clearly positive in PCR
- The virus circulates for a longer time already on the farms
- Mostly animals at end of gestation were found dead or sick
- These animals may be more susceptible
- 400 meter zone lifted after the second air sampling