



Ministry of Agriculture, Nature and
Food Quality



Q-fever in the Netherlands

8 January 2010



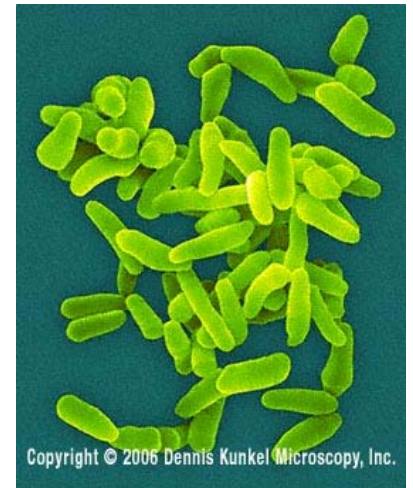
Q-fever

Caused by the bacterium *Coxiella burnetii*

Found in over 100 mammals (i.e. cattle, sheep, goats, cats, dogs), birds and insects.

Extremely persistent

Zoonosis





Effect of Q-fever on animals

Most animals do not show clinical signs

In small ruminants Q-fever can cause abortion, slowness, reduced appetite, inflammation of the uterus

In goat and sheep antibiotics do not seem to have significant effect





Pathogenesis of Q fever

Infection routes not known

Bacteria has tropism for reproduction organs

Bacteria are shed in high quantities during abortion and partus

Shedding intermittent, highest risk near to partus

No direct relation between antibody titre and infection

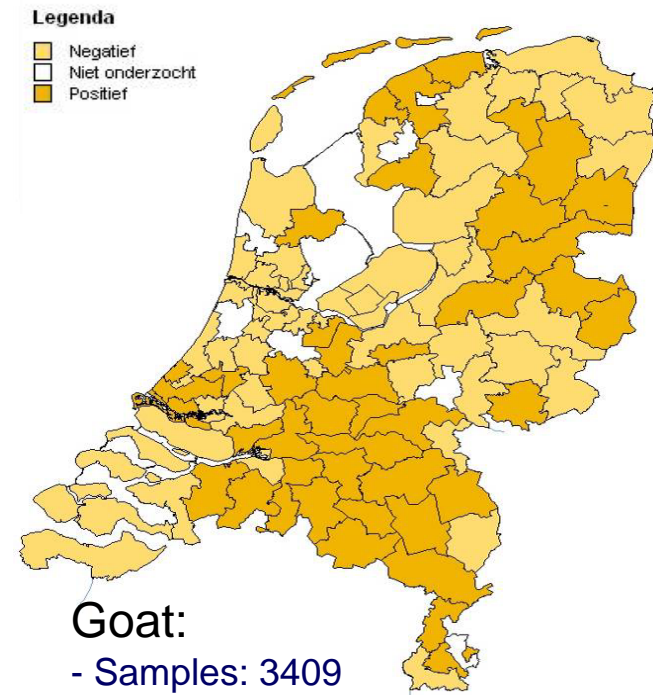


Q-fever can be found everywhere... (Seroprevalence Q-fever, 2008)



Sheep:

- Samples: 12.363
- Negative: 97,6%
- Positive: 2,4%

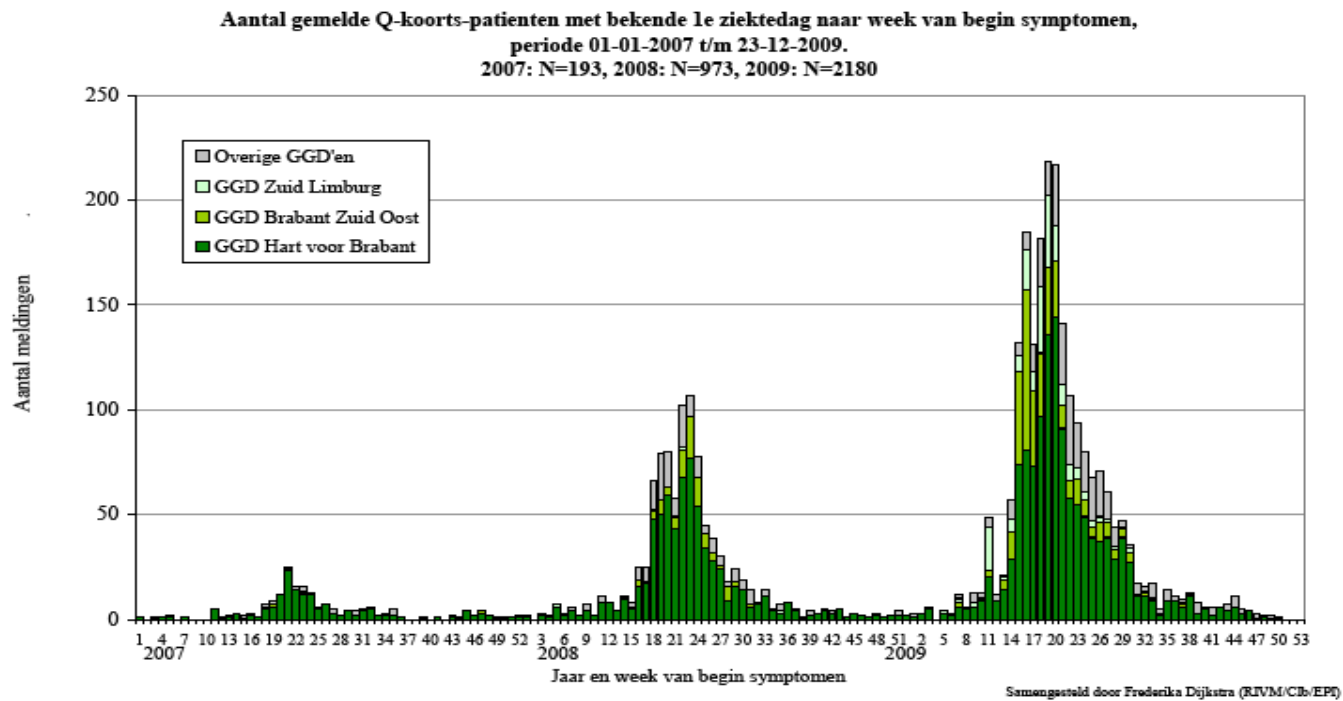


Goat:

- Samples: 3409
- Negative: 92,1%
- Positive: 7,9%

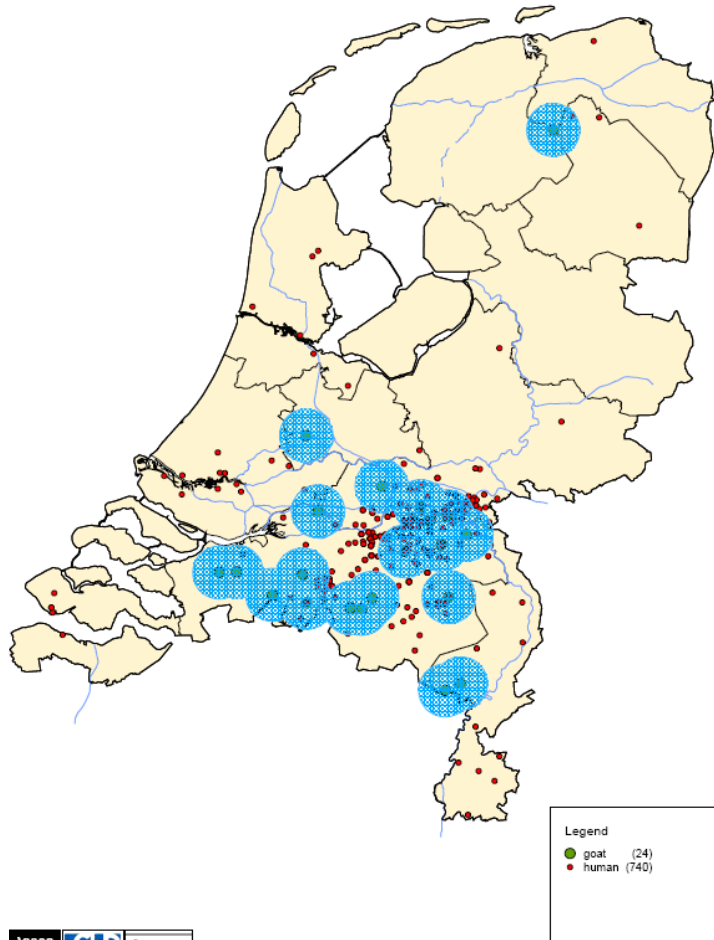


Human reports of Q-fever in the Netherlands





Q-fever outbreaks (human versus goat) 2005-2008



- Experts believe there is a connection between the outbreaks on goat and sheep dairy farms and the human outbreak
- Large amounts of *Coxiella burnetii* are spread by infected animals in case of an abortion



Measures taken in 2008

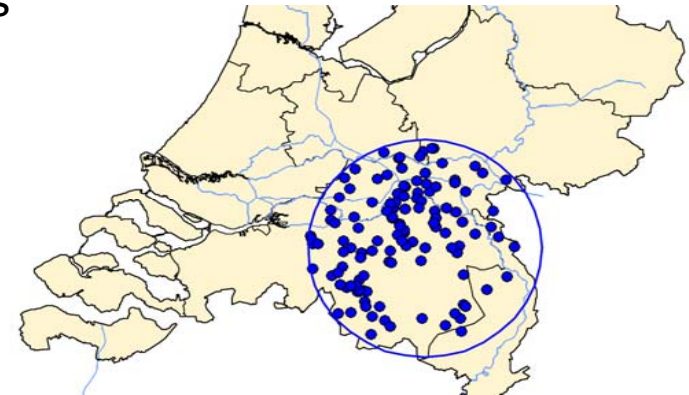
Notification obligation for goat and sheep farms in case of high abortion rates:

- For farms with less than 100 animals: 3 abortions within 30 days
- For larger farms: > 5 % abortion of pregnant animals within 30 days

Restrictions for infected farms

- No visitors allowed in the stable for 3 months
- No manure may be removed from the stable for 3 months

Voluntary vaccination around Herpen





Q-fever vaccine Coxevac

Produced by CEVA

Not authorized, but application has been submitted

Technical details:

- Inactivated, no adjuvans
- 100 µg/mL antigen
- Two vaccinations (3 weeks)
- Not applicable during pregnancy of animals





Measures early 2009

Notification obligation for goat and sheep farms in case of high abortion rates (same as in 2008)

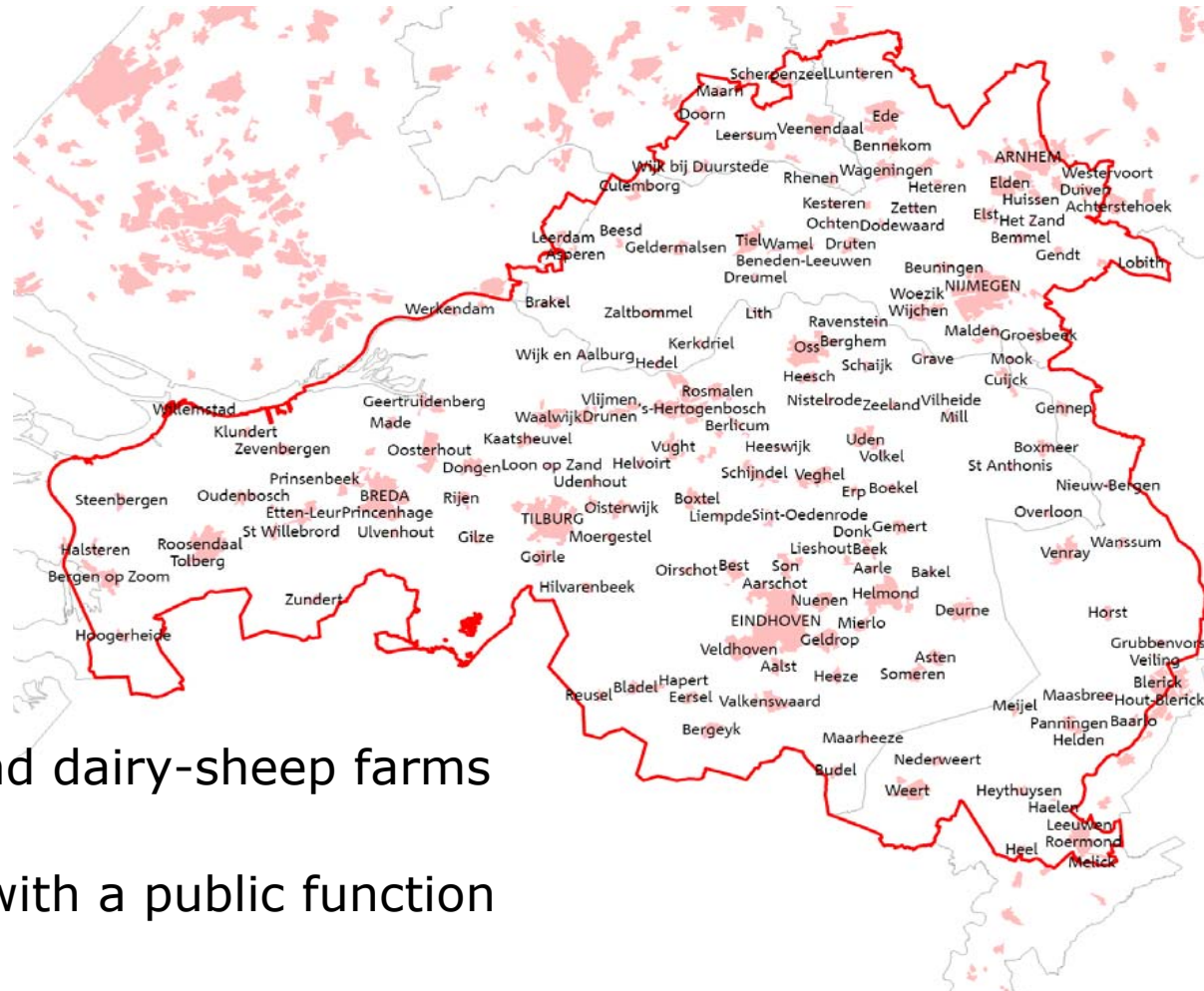
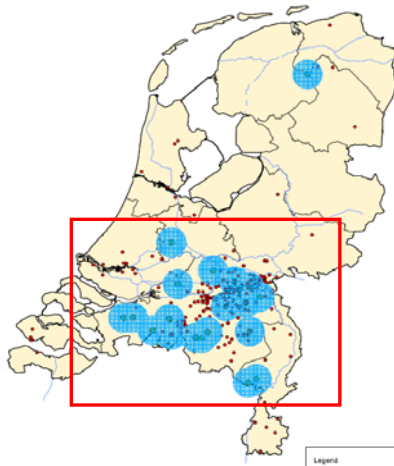
Compulsory vaccination of 'high risk' goat and sheep farms of the Netherlands

Voluntary vaccination in the rest of the Netherlands

Hygiene protocol, which is in part mandatory



Compulsory Q-fever vaccination 2009



- Large dairy-goat and dairy-sheep farms (≥ 50 animals)
- Goat/sheep farms with a public function

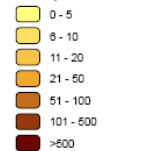


Q-fever outbeaks (human versus goat)

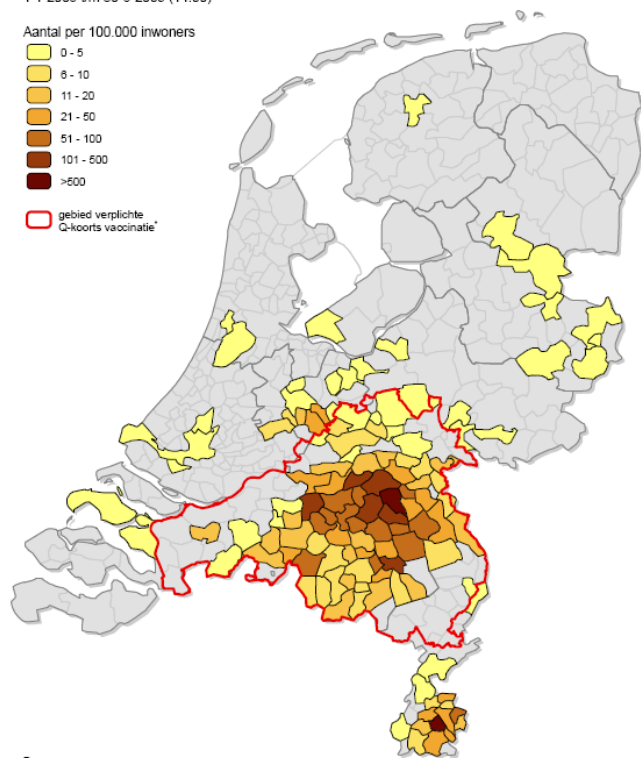
Gemeelde Q-koortspatiënten 2009

Incidentie per gemeente
1-1-2009 t/m 30-6-2009 (14:00)

Aantal per 100.000 inwoners



gebied verplichte Q-koorts vaccinatie



Bronnen:
- OSIRIS
- CBS (2009)

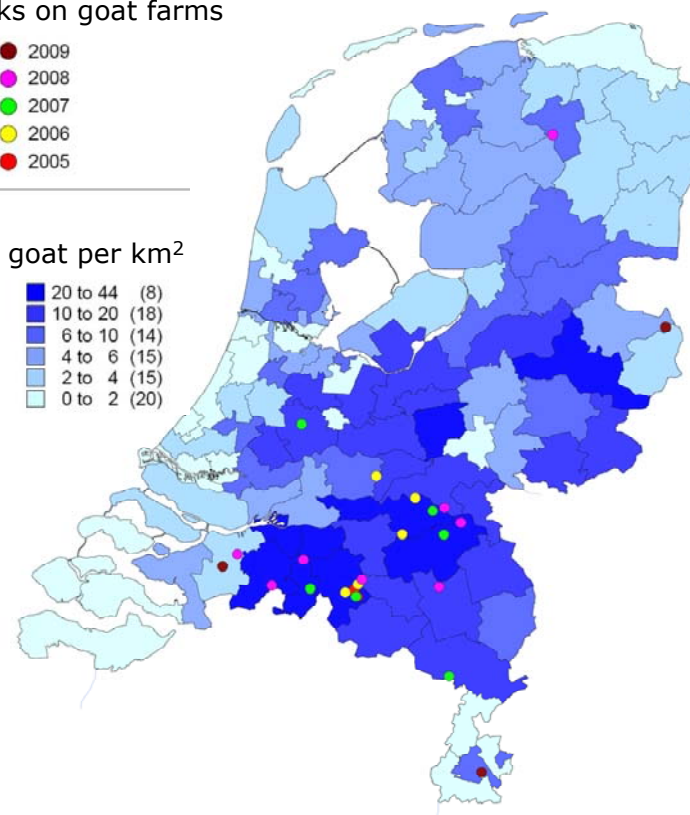
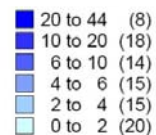
1) Gebied waar in 2009 vaccinatie tegen Q-koorts verplicht wordt voor schapen en geiten op professionele melkgeiten- en melkschapenbedrijven en op bedrijven met een publiekstunne.
Bron: Ministerie van LNV

rivm

Outbreaks on goat farms



Number of goat per km²



c) 2009 Gezondheidsdienst voor Dieren, Kadaster, Topografische Dienst



Situation summer 2009

- Area of human infections is getting bigger
- More patients than previous years, percentage hospitalized remains 20%
- New PCR on bulk milk gives a good indication of infection on farms
- Approximately 70% of the milking goat farms is still free from infection
- Intra farm prevalence is lower than expected: indication that Q-fever does not spread quickly within a farm?



New approach (October 2009)

Monitoring of bulk milk: compulsory for all keepers of milking goats and sheep (>50 animals)

Bulk milk monitoring used as criterion to identify infected farms, expectance is that roughly 30% of the goats farms will test positive for Q-fever.

Next year compulsory vaccination of all milking sheep and goats and farms with public function in the whole of the Netherlands.



Measures October for infected farms

No unnecessary visitors

Transport restrictions: No transport of animals for milk production or breeding

Hygiene measures:

- Eradication of vermin is compulsory
- Forbidden to clean out stables during lambing season + 30 days
- Afterwards manure must be stored covered up for 90 days
- After 90 days the manure can be distributed on the land

NB: Research on supplementary measures is ongoing; industrialised composting and putting manure under water to decrease the spread of bacteria from stables.



New approach 2010

In November experts analysed 9 scenario's on effectivity:

- 1.The October strategy
- 2.Closing farms from wind
- 3.Breeding stop
- 4.Culling of pregnant animals
- 5.Culling of only infected pregnant animals
- 6.Relocation of premises (not closer than 5 km to city cores)



New approach 2010

Advise of experts

1. The October strategy is effective and will book results by 2011.
2. Closing farms from wind on its own is not very effective to prevent sickness in humans, but might be useful complementary to other hygiene measures.
3. Breeding stop won't have effect for the lambing season of 2010, because all goats are already pregnant.
4. Culling of pregnant animals, will be effective already in 2010
5. Culling of only infected pregnant animals, is not possible because of the intermittent shedding of animals
6. Relocation of premises (not closer than 5 km to city cores) is not possible. In the Netherlands there are very few locations further than 5 km to any city core.



New approach 2010, measures

- Bulk milk monitoring
- Stop on enlargement of farms
- Culling of pregnant animals on infected farms
- Breeding stop
- Transport restrictions
 - Transport from infected farms, only to slaughterhouse or young goats to fattening farms
 - Transport to infected farms is not allowed

Hygiene measures

- From date of a positive monitoring result to 30 days after culling stables cannot be cleaned out.
- After 30 days, manure must be stored covered for 90 days.
- Administration of manure handling



Dicussion points

The crisis is ongoing, many questions remain unsolved:

- Tracking and tracing
- Small holdings (city farms)
- Risk of male animals
- Differentiation between infected and not-infected farms
- Other diagnostic methods
- Dismantlement of measures



Expectations for the future

- The bacteria is wide spread in the environment, present in other animal species and very persistent.
- We cannot ban Q-fever from the Netherlands, but try to go back to the normal situation as before 2007
- Vaccination in combination with the other measures will decrease the epidemic.
- Many questions remain unanswered, 6 million euro invested in research programs.