



Ministry of Agriculture, Nature and  
Food Quality



## Q-fever in the Netherlands

- General information Q-fever
- Human outbreak in 2007 and 2008
- Situation in 2009

6 October 2009



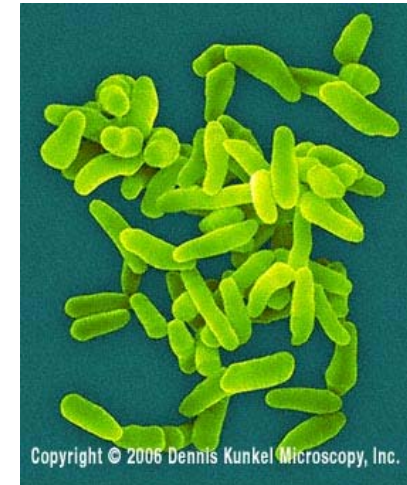
## Q-fever

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

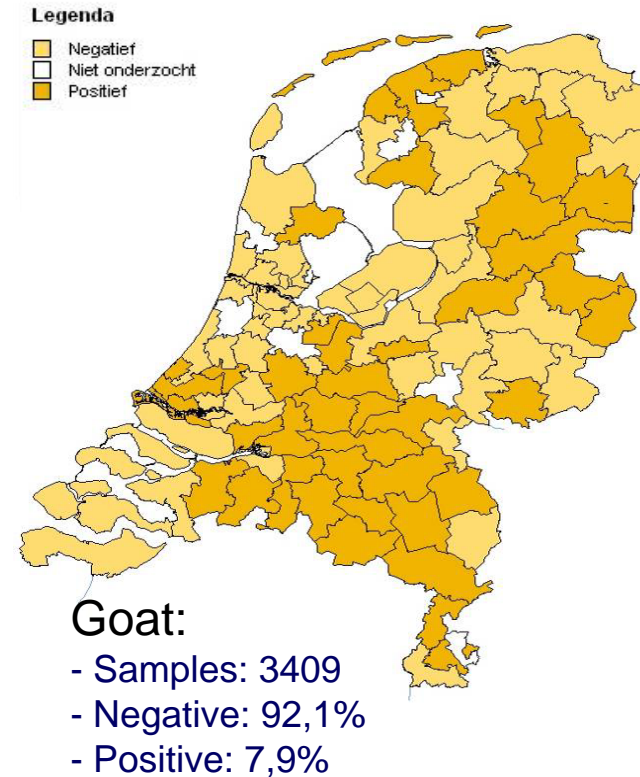
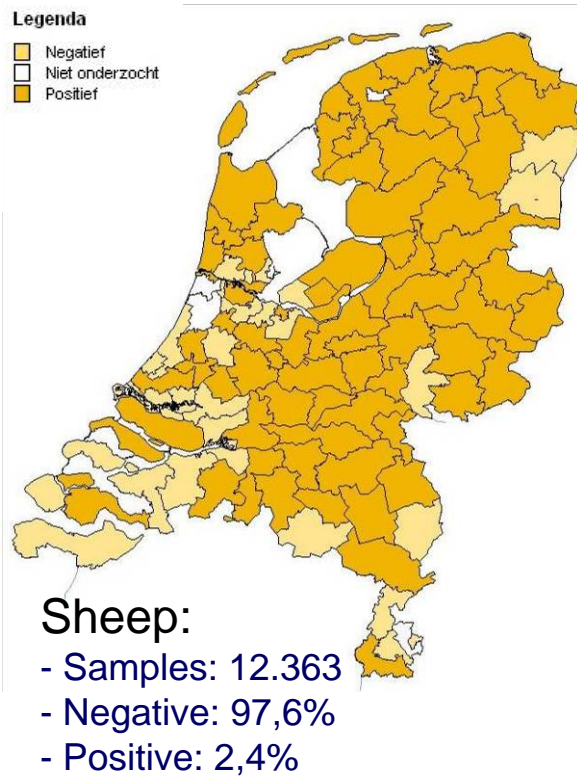
In small ruminants Q-fever can cause abortion, slowness, reduced appetite, inflammation of the uterus

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





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





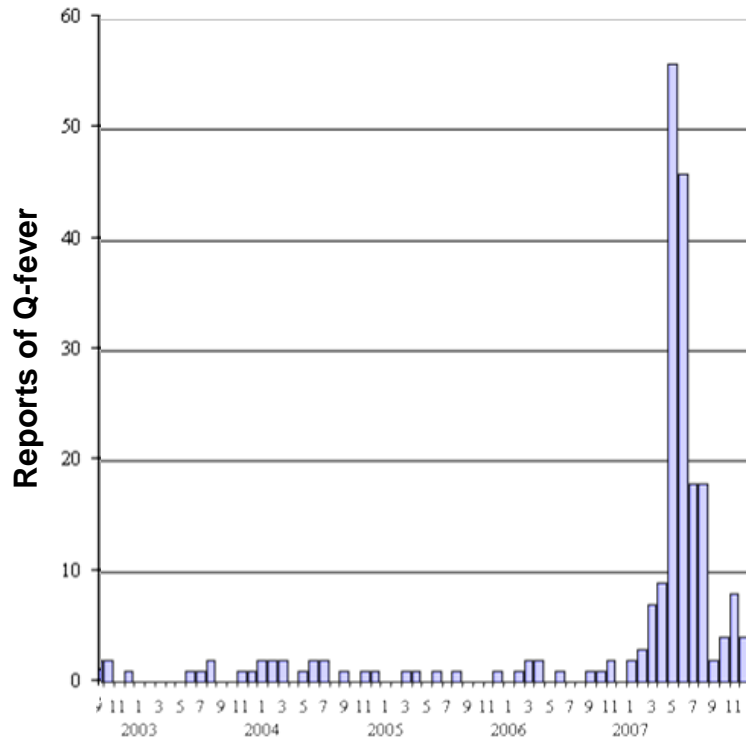
2007 and 2008





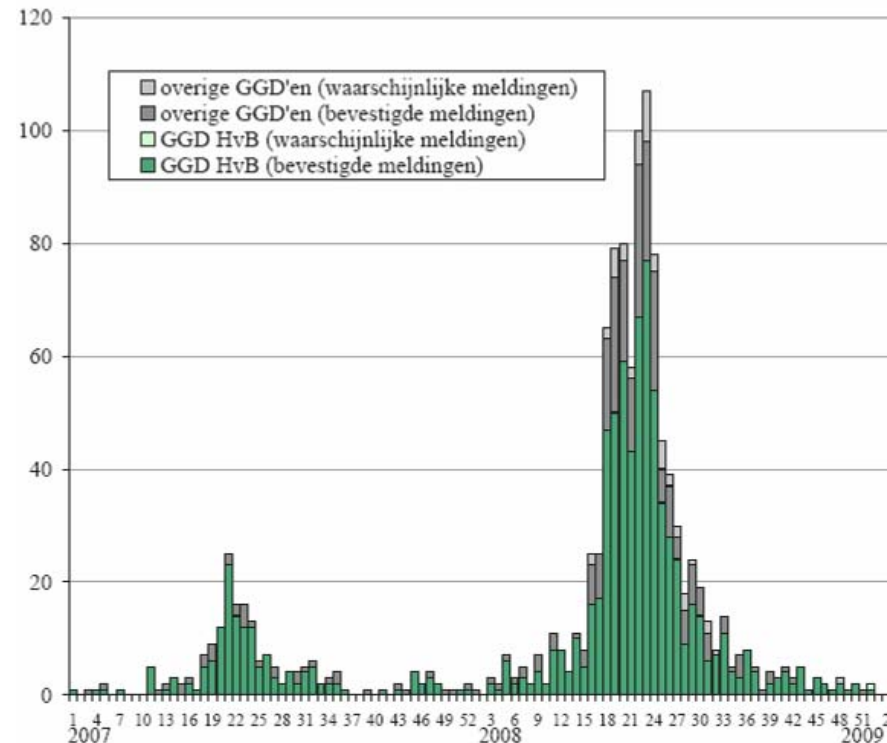
# Human reports of Q-fever in the Netherlands

1997-2006: N= 93 (21 missing)  
2007: N=177 (1 missing)



Year and month (first day of illness)

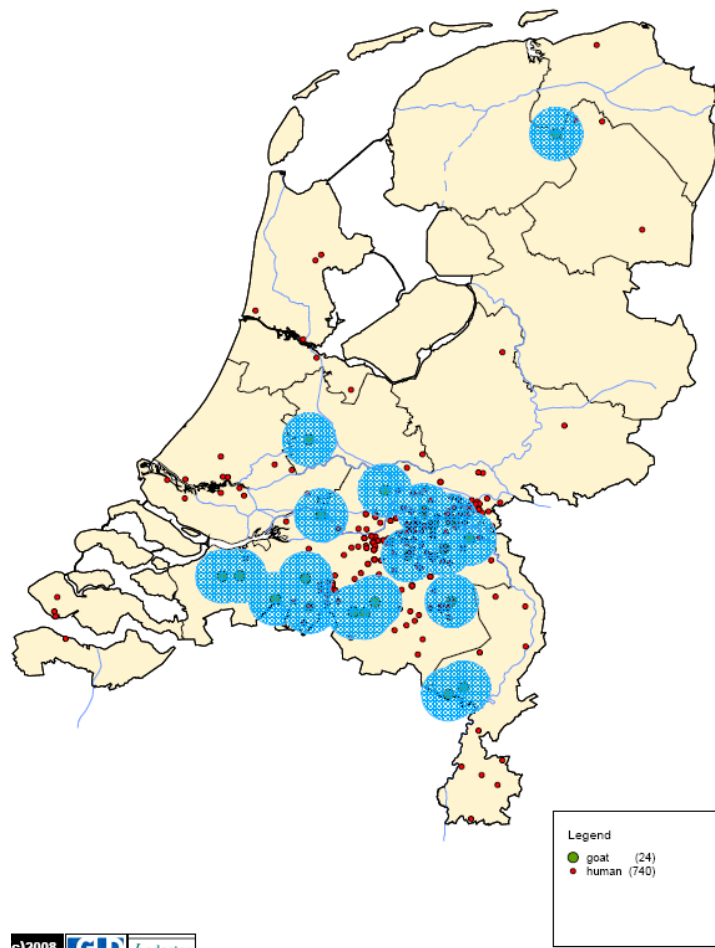
periode 01-01-2007 t/m 04-03-2009.  
2007: N=192, 2008: N=958, 2009: N=3



Year and week (first day of illness)



## 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

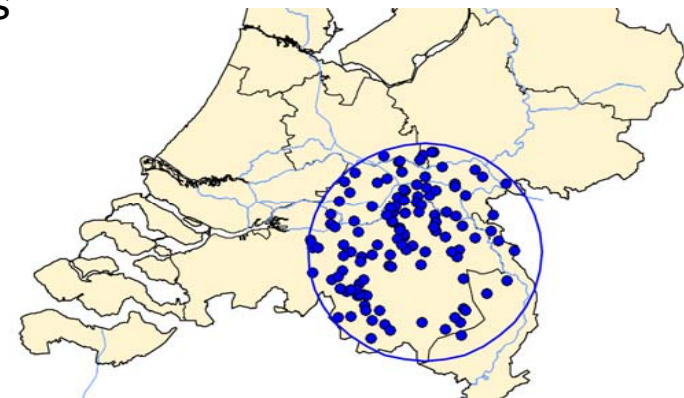
Notification obligation for goat and sheep farms in case of high abortion rates:

- 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







2009





## Measures taken 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

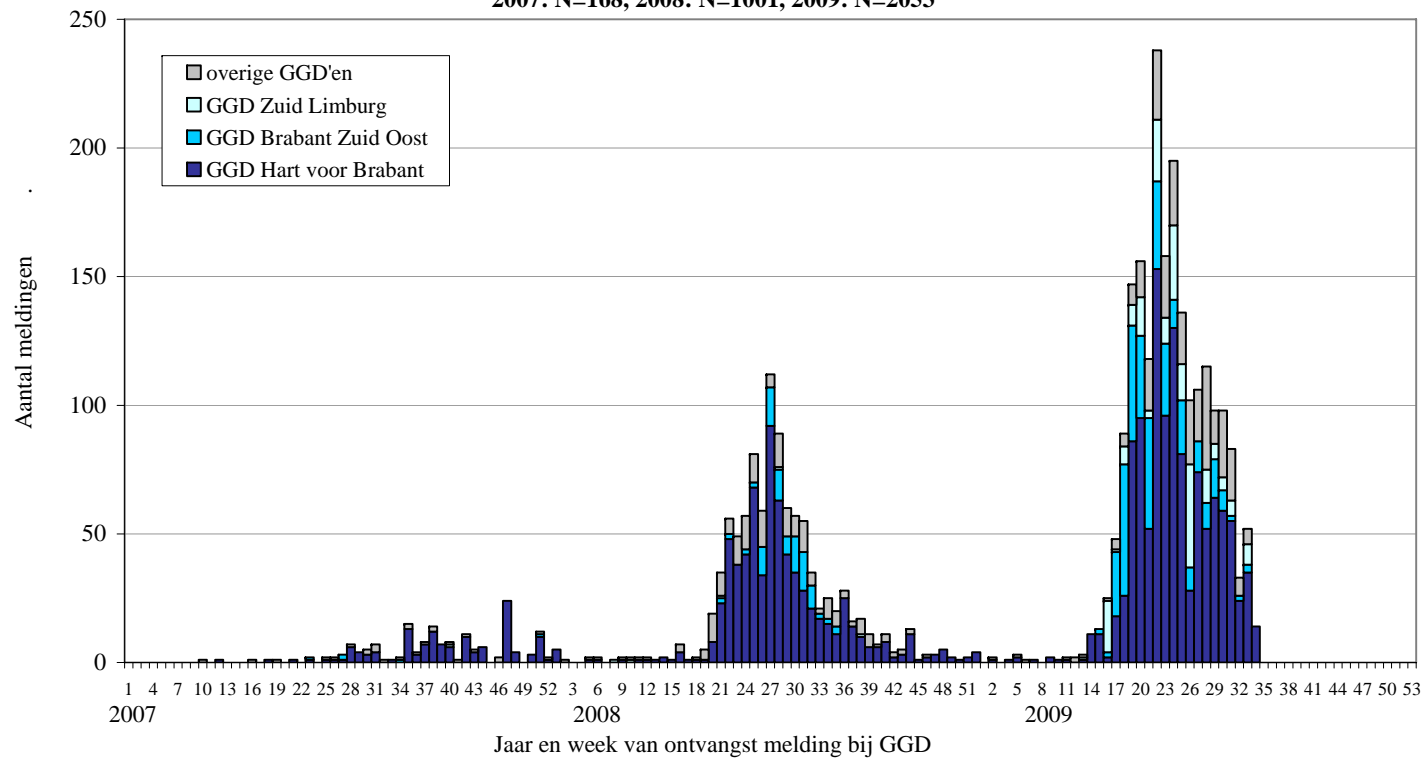
Hygiene protocol, which is in part mandatory





# Human reports of Q-fever in the Netherlands

Aantal gemelde patiënten met Q-koorts naar week van ontvangst melding bij de GGD,  
periode 01-01-2007 t/m 19-08-2009.  
2007: N=168, 2008: N=1001, 2009: N=2053



Samengesteld door Frederika Dijkstra (RIVM/CIb/EPI)

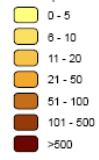


# Q-fever outbeaks (human versus goat)

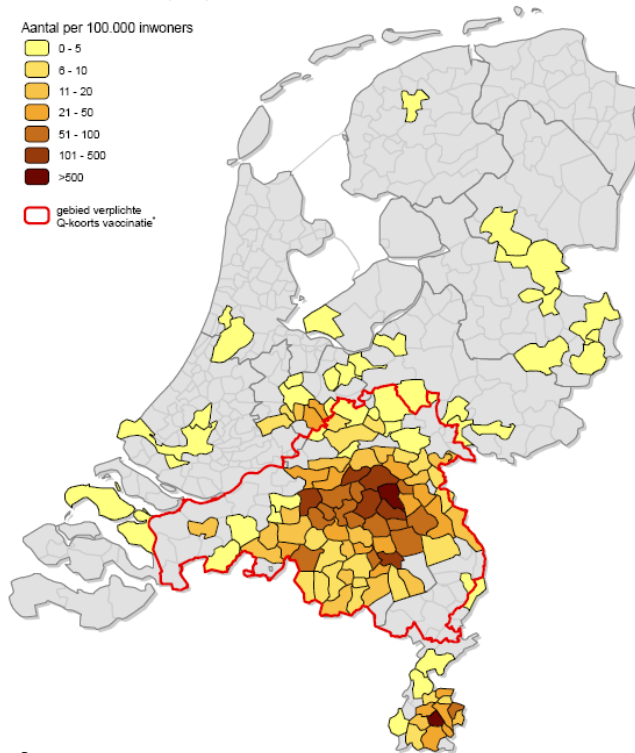
## Gemelde Q-koortspatiënten 2009

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

Aantal per 100.000 inwoners



gebied verplichte Q-koorts vaccinatie



Bronnen:  
- O.SIRIS  
- CBS (2009)

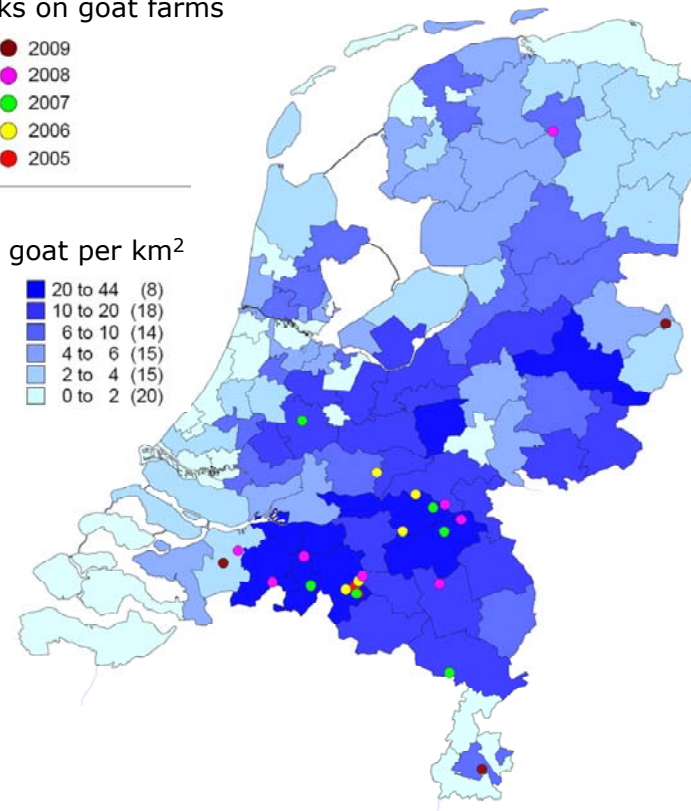
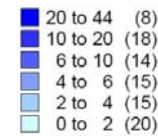
\*) Gebied waar in 2009 vaccinatie tegen Q-koorts verplicht wordt voor schapen en geiten op professionele melkgeiten- en melkschapenbedrijven en op bedrijven met een publieksfunctie.  
Bron: Ministerie van LRV

rivm

## Outbreaks on goat farms



## Number of goat per km<sup>2</sup>



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 theories:
  - Infected animals without abortion shed large quantities bacteria at partus.
  - Environmental contamination with very persistent bacteria may add to number of infections
- New PCR on bulkmilk 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)

Aimed at keeping free the Q-fever free farms and eradication from infected farms

Monitoring of bulk milk starting October 2009: compulsory for all keepers of milking goats and sheep (>50 animals)

Bulk milk monitoring will be 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.



## New approach: measures 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.



## Expectations for the future

- We believe that vaccination in combination with the other measures will decrease the epidemic.
- Sector has made action plan for fast elimination of the infection
- The bacteria is wide spread in the environment and very persistent. We expect that the coming years still people will get sick by q-fever.



## Acknowledgements

- Peter de Leeuw (CVO)
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