

# Q Fever



## Information for farmers

If your herd has recently tested positive for Q fever  
the following information may be of help



*Due to the national prevalence of the disease and how it is spread, it is unlikely that your farm is an isolated case locally.*

*This information pack has been provided for you by Ceva Animal Health,  
makers of the Q fever vaccine Coxevac<sup>®</sup>.*

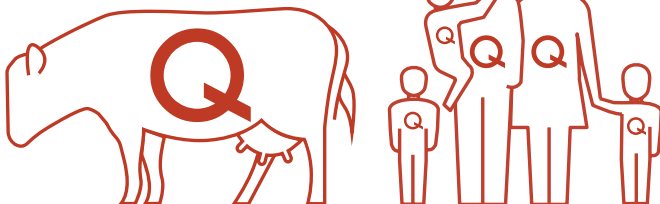
# Q Fever

## What is Q fever?

Q fever is a zoonotic bacterial infection caused by *Coxiella burnetii*.

This bacterium is endemic in the UK and can be found in multiple species around the world, including humans, cattle, sheep, goats and other mammals, as well as reptiles, birds and ticks.

**Ruminant populations infected with Q fever are the main source of infection.**



## Who to contact for help and advice

For livestock related queries including vaccination please contact your farm vet.

If you or members of your family are unwell, you should contact your GP and tell them that your herd has recently been diagnosed with Q fever.

# Q Fever

**Do you  
recognise  
these signs?**

Weak newborns  
Stillbirth  
Premature calving  
Abortion  
Infertility  
Retained placenta  
Metritis

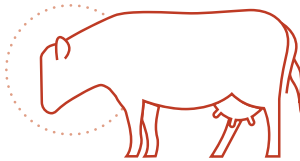
## How does Q fever affect cattle?

In cattle, clinical signs associated with Q fever infection include:

- Abortions & pregnancy loss <sup>(1,2)</sup> (at any stage) - cattle with Q fever are 2.5 times more likely to abort than those uninfected with Q fever <sup>(3)</sup>
- Infertility including late return to bulling, increased unplanned days open period <sup>(1,3)</sup>
- Still births, weak or premature calves <sup>(4)</sup>
- Retained placenta - a cow that has been exposed to the bacteria is 1.5 times more likely to have retained foetal membranes <sup>(3, 5)</sup>
- Metritis/endometritis - herds with evidence of Q fever bacteria circulating were 2.5 times more likely to have a high incidence of metritis/clinical endometritis <sup>(3, 5)</sup>

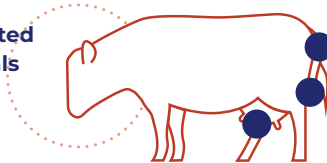
# How is it transmitted between livestock?

Inhalation of  
*C. burnetti*



The main route of infection in animals and humans is by inhalation of contaminated air particles originating from pregnant infected ruminant females.

*C. burnetti* can also be excreted by apparently healthy animals outside parturition period



Vaginal mucus

Faeces

Milk

## Other routes of infection

- Oral – low risk
- Vector-borne e.g. ticks
- Venereal (during mating) - theoretical risk

NB: Risk levels may be evaluated differently by different authorities, due to to method of analysis used

# How much does Q fever cost when a herd is infected?

Farm businesses can be greatly impacted financially from Q fever due to its impact on herd fertility. This includes the cost of abortions, increased days open, treating metritis and endometritis, culling out and replacement costs for problem animals for example. Both the time taken to manage such challenges and associated costs can easily be overlooked.

Remember that infected cattle are 2.5 times more likely to abort than those uninfected <sup>(3)</sup>, moreover the abortions can occur at any point in the gestation so may not be immediately accounted for.

Cattle vaccinated for Q fever have been shown to have a reduction in open days, by 14 days <sup>(6)</sup>. The risk of cattle aborting is also lowered, thus increasing herd efficiency and production overall <sup>(3)</sup>.

Vaccinated cattle are 5 times less likely to shed the bacterium that causes Q fever than non vaccinated animals <sup>(7)</sup>.

Vaccination is always recommended, due to the zoonotic risk, and should be discussed with your farm vet alongside management actions that can be implemented to reduce the spread of the bacterium that causes Q fever.



# The characteristics of *Coxiella burnetii*

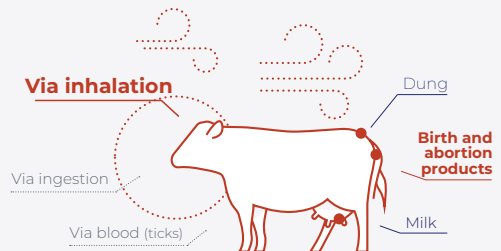
## The bacterium that causes Q fever survives:

- 5 months in the soil <sup>(10)</sup>
- 2 years at -20°C <sup>(11)</sup>
- 7 to 9 months in contaminated wool stored at 20°C <sup>(12)</sup>
- 24 months in faeces/dung <sup>(13)</sup>
- Up to 20 months in tick faeces <sup>(13)</sup>
- Thermostable (survives 30 minutes at 60°C) <sup>(13)</sup>
- Large variations in pH <sup>(13)</sup>
- Resistant to many disinfectants & antiseptics <sup>(14)</sup>

The bacterium can be spread by the wind for up to 11 miles <sup>(15)</sup>

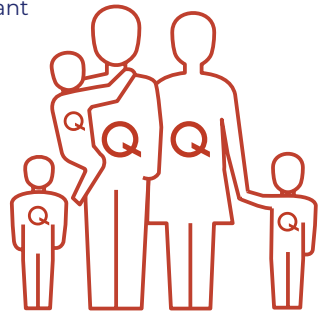
Activities that may increase risk of spreading bacteria over distances include dung or slurry spreading, pressure washing parlours and poor disposal of foetal membranes, placenta or aborted foetus from infected herds.

**The bacterium is highly infectious and Q fever can be transmitted by coming into direct contact with the bacterium present in air particles, vaginal mucus, dung, dust and milk.**



# Q fever is zoonotic, presenting a risk to human health

- Those most at risk of Q fever include cattle and small ruminant farmers, family, employees, abattoir workers, technicians including foot trimmers and artificial inseminators, veterinarians and vet support staff
- The infectious dose in human is very low (less than 10 bacteria) meaning that it doesn't take many bacterium to become unwell <sup>(8)</sup>
- Doxycycline is the first line antibiotic treatment for acute Q fever in humans. This treatment may last for several of weeks
- There is no human vaccine available in UK
- If you or your family members or employees are unwell you should contact your GP and tell them that your herd has recently been diagnosed with Q fever

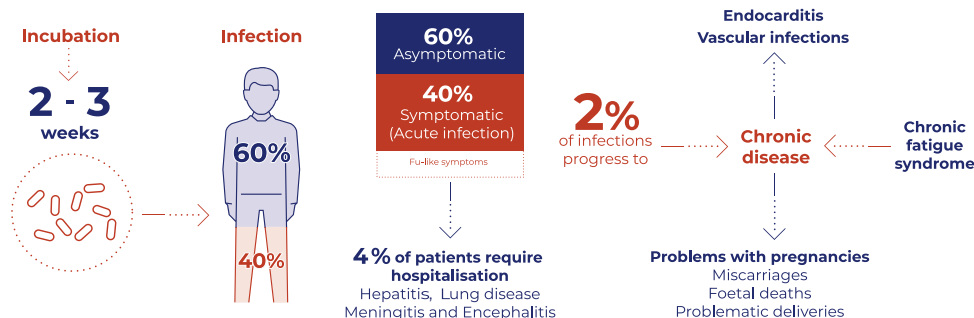


## Does drinking raw milk from your herd increase your risk?

It is considered low risk in comparison to inhalation of the bacterium. This does not however remove all risk. The Q fever bacterium *Coxiella burnetii* is thermotolerant surviving 30 minutes at 60c <sup>(9)</sup>. Standard pasturisation (at least 71.7°C for 15 seconds or any equivalent combination) is anticipated to inactivate any *Coxiella burnetii* within the milk.

# How does Q fever affect human health?

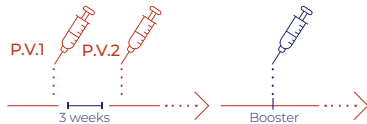
- 60% of human Q fever cases will be asymptomatic and unaware of infection
- 40% will experience an acute infection with flu-like symptoms
- 4% will require hospitalisation
- 2% of infections progress to chronic diseases including chronic fatigue syndrome, endocarditis and vascular infections
- **Q fever infections can progress to miscarriage, foetal death and pre-term delivery**



**Don't forget to provide information to your employees about how to reduce the risk of catching Q fever. Share this booklet with them or pin up the the flyer enclosed to a noticeboard in an office or restroom.**

# Vaccination for herds

The unique vaccine Coxevac is available for use in cattle. The objective of the vaccine in cattle is to lower the risk for non-infected animals to become shedders of the Q fever bacterium *Coxiella burnetii*.



**P.V.1** 1<sup>st</sup> primary vaccination injection

**P.V.2** 2<sup>nd</sup> primary vaccination injection



It is advisable to vaccinate all the animals in the herd at the same time.

Primary vaccination: Two doses should be given subcutaneously with an interval of 3 weeks. Under normal conditions the timing of vaccination should be planned so that the primary course is completed by 3 weeks before artificial insemination or mating.

- Booster required, dose: 4ml in cattle
- Withdrawal period for meat, milk and offal: zero days
- Vaccine can be used in cattle from 3 months of age

A Q fever vaccine protocol needs to be implemented over at least 3 years, preferably 5-10 years, to maximally reduce shedding, and therefore environmental contamination and disease. Please discuss vaccination protocols for Q fever with your farm vet.

# UK regulatory reporting for Q fever

**Farms across the UK will not be restricted or shut down due to Q fever being diagnosed on farm.**

## England, Wales and Scotland

**Q fever is a reportable disease in England, Wales and Scotland, like Salmonella.**

It is NOT a notifiable disease.

**Why?** Coxiella burnetii (Q fever) was added to the Zoonoses Order in 2021.

**What for?** Zoonotic nature (risk to human health) and to facilitate trade.

This means that APHA require that they are informed of all positive PCR results. This is done by the vet, the laboratory (if based in UK) or Ceva Animal Health (UK) at the request of APHA.

**Will you receive a visit from anyone official?** Not from APHA but they may phone you to find out more information and provide advice. The local health agency may also be informed and get in touch to offer guidance due to the zoonotic risk.

**Does the farm receive any official notification?** No

## Northern Ireland

Q fever is also a reportable disease in Northern Ireland.

This means that under the Zoonoses Order there is a requirement that DAERA are informed of all positive (PCR) cases. This should be done by either the laboratory (if based in UK) or possibly by your veterinarian.

**Will you receive a visit from anyone official?** Not from DAERA but they may contact you to find out more information and provide advice. The Public Health Agency may also be informed.

# What can you do to reduce the risk of Q fever impacting your herd?

Scan for UK Gov  
advice on Q fever



If your herd has been diagnosed with Q fever you can help manage the infection by taking some simple steps. These steps may reduce the impact to your herd and also reduce the risk of infecting humans, either working or living on your farm and those beyond your farm gate.



Always investigate herd abortions as soon as possible (ideally within 3 days) and other fertility issues with your vet



Always maintain good hygiene when working with your herd, especially when handling cows and calves at calving or when administering AI treatments - use protective obstetrical gloves, sleeves, frequently cleaned overalls and wash hands regularly



Wearing a face mask when assisting with calving or washing down areas may also reduce risk of inhalation of any bacterium present



Pregnant women should avoid close contact with ruminants and other farm animals, especially those in the process of giving birth, or in the post-partum period



Placentas and fetuses should be collected, properly stored and destroyed. Best practice includes bagging, tying securely and passing to licensed fallen stock service for incineration, unless you have a suitable incinerator on farm



Removing potentially contaminated dung, straw or other materials by fork, before using very high pressure jet washing to reduce risk of spread the bacteria into the air. Consider lower pressure wash systems



Avoid spreading farmyard manure or slurry from infected herds using splash plates or conventional spreaders, especially on windy days. Consider injection or trailed hose methods



Maintain a closed herd, but if not possible then carefully select and quarantine replacements



Vaccinate with Coxevac: 1) to protect non infected herds and individuals  
2) to break the circulation of the bacteria and decrease shedding

# Next Steps

Speak to your farm vet about reducing the impact of Q fever on your farm.

Speak to your GP if you have any health concerns that you feel may be attributable to Q fever.

## Find out more



UK Government Q fever infections in humans: sources transmission, treatment - GOV.UK ([www.gov.uk](http://www.gov.uk))



Q fever: Information for Farmers published by HM Government Factsheet ([publishing.service.gov.uk](http://publishing.service.gov.uk))



Q fever: Information from NHS ([www.nhs.uk](http://www.nhs.uk))



[www.qfever.co.uk](http://www.qfever.co.uk) – website provided by Ceva Animal Health, makers of Coxevac – the vaccine for Q fever.

**References** 1. Dobos A. et al. 2020. Serological screening for *Coxiella burnetii* in the context of early pregnancy loss in dairy cows. Acta Veterinaria Hungarica 68.3 (2020): 305-309. 2. Cabell E. Bovine abortion: aetiology and investigations. In Pract 29 (8): 455-463 3. Ordroneau, S., 2012. Impact de la vaccination et de l'antibiothérapie sur l'incidence des troubles de la reproduction et sur la fertilité dans des troupeaux bovins laitiers infectés par *Coxiella burnetii*. INRA - ONIRIS, 1300 BioEpaR Biologie, Epidémiologie et Analyse du Risque. Centre de Recherche Angers-Nantes, Nantes, France. 4. Barberio, A. et al. 2017. Epidemiology of Q Fever in cattle, in: The Principles and Practice of Q Fever: The One Health Paradigm. Nova Science Publishers, New York, pp. 189-212. 5. Valla, G., 2014. Prevalenza di *Coxiella burnetii* nel latte di massa in allevamenti di bovine da latte italiani e possibile correlazione con problemi riproduttivi. Large Animal Review 51-56. 6. Lopez Helguera, I. et al. 2014. Vaccinating against Q-fever with an inactivated phase-I vaccine (COXEVAC®) improves reproductive performance in *Coxiella burnetii*-infected dairy herds. Presented at the XXVIII World Buiatrics Congress, Cairns, Australia 2014, pp. 274-275. 7. Guatteo R. et al. 2008. Prevention of *Coxiella burnetii* shedding in infected dairy herds using a phase I *C. burnetii* inactivated vaccine. 26(34):4320-4328. 8. Williams J. 1991. Virulence and pathogenicity of *Coxiella burnetii* for various hosts. In: Williams J, Thompson H, editors. The biology of *Coxiella burnetii*. Boca Raton (FL): CRC Press; 1991. 9. Cerf O et al. 2006. *Coxiella burnetii* and milk pasteurization: An early application of the precautionary principle? Epidemiol Infect. 134:946-951 10. Welsh et al. 1959. Q fever studies. XXI. The recovery of *Coxiella burnetii* from the soil and surface water of premises harboring infected sheep. Am. J. Hyg. 70 :14-20. 11. McCaul TF, Williams JC. Developmental cycle of *Coxiella burnetii*: structure and morphogenesis of vegetative and sporogonic differentiations. J Bacteriol. 1981 Sep;147(3):1063-76. doi: 10.1128/jb.147.3.1063-1076.1981. PMID: 7275931; PMCID: PMC216147. 12. Nusinovi S. et al. 2015. Q Fever infection in dairy cattle herds: increased risk with high wind speed and low precipitation. Epidemiology & Infection 143.15 (2015): 3316-3326. 13. Guatteo, R. 2013. Q Fever. An emerging disease. Book published by Grupo Asis Biomedica, S.L 14. Heinzen et al., 1999. Developmental biology of *Coxiella burnetii*. Trends in Microbiology Volume 7, Issue 4, 1 April 1999, Pages 149-154. 15. Hawker JL. et al. 1998. A large outbreak of Q fever in the West Midlands: windborne spread into a metropolitan area? Commun Dis Public Health. 1998; 1:80-7.

COXEVAC® suspension for injection for cattle and goats contains inactivated *Coxiella burnetii*, strain Nine Mile 572 QF Unit/ml. Q-fever Unit: relative potency of phase I antigen measured by ELISA in comparison with a reference item. LEGAL CATEGO:RY: UK [ZOO.1]. Please refer to the product packaging and leaflets for information about side effects, precautions, warnings and contra-indications. Further information is available from the SPC or on the datasheet at [www.noahcompendium.co.uk](http://www.noahcompendium.co.uk) or upon request. Prescription decisions are for the person issuing the prescription alone.

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