



## TB IN GOATS - REDUCING THE RISK IN THE LARGER HERD

### INTRODUCTION

These guidelines have been produced by the Goat Veterinary Society, but only give generic advice. No two goat units are identical, and the information given below is intended as a guide to what steps can be taken to minimise risks, and for discussion with your own veterinary surgeon. This advice is particularly relevant if your goat unit is in an endemic bovine TB area or you intend purchasing goats from such an area.

All goat keepers are urged to familiarise themselves with the official advice given on the Defra website, and aimed predominantly at cattle keepers.

<http://www.defra.gov.uk/animal-diseases/a-z/bovine-tb/animal-keepers/>

### BACKGROUND

Bovine TB was not recognised in goats in the UK for a long period after World War 2 and this led to a cessation of the testing of goats for TB unless they were co-located with infected cattle from around 1980. Between 2007 and 2012, sporadic cases of TB were identified in goats, including a cluster of 10 cases in 2008 in Golden Guernsey goats linked to the sale of a small herd in south-west Wales with unrecognised disease. The outbreak was eventually brought under control through repeat tuberculin skin testing in the affected herds and slaughter of all test positive ('reactor') goats.

In late 2013 however, a serious TB outbreak was identified in two linked commercial dairy goat herds. Investigations are still ongoing, but it is known that the owner of one herd had purchased goats from the other.

These recent cases highlight the need for increased vigilance and to take such precautions that are practicable to reduce the risk of TB being introduced into a goat herd. There is NO absolute guarantee that any level of precaution will keep a herd free of TB, but there is much that can be done to minimise the risk.

### TB IN GOATS

In cattle, the organism initially localises in the lymph nodes at the back of the throat, and after a short incubation period, they become infectious to others. Again in cattle the body reacts to the infection by localising the bacterium, producing what is known as a tubercle. Infection can potentially break out of the tubercle however, usually into the lungs, causing what is referred to as an "open" TB case, and the animal once again becomes infectious.

Post mortem studies have shown that in the affected goats in the 2008 outbreak (many of which were subjected to detailed post mortem examination), these walled off tubercle lesions did not develop, and instead large abscesses were produced with

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## **TB IN GOATS - REDUCING THE RISK IN THE LARGER HERD**

more liquid pus, which often eroded quickly into the airways, such that they were quickly able to “cough up” and “breath out” TB organisms into the environment.

The major spread of TB infection within housed goats is via the old adage that coughs and sneezes spread diseases, so it is clear that infected goats are a very serious spreader of TB to other goats in the same airspace once infection gains access. Spread from dam to kid through the feeding of milk from heavily infected goats with TB of the udder is also possible.

***IT IS VITAL IN GOATS THEREFORE TO REDUCE THE RISK OF INFECTION GAINING ACCESS TO A HERD AS FAR AS IS POSSIBLE.***

### **POTENTIAL SOURCES OF TB FOR GOATS.**

Bovine TB can infect many domestic animal species, such as deer, water buffalo, camelids, pigs, sheep, dogs and cats although the number of outbreaks in these species is relatively low. Infected urine, faeces, bedding and contaminated feed and water all pose a risk. The greatest risks of infection to goats however are from introduction of untested animals from an undetected TB-infected goat herd (as illustrated by the secondary cases in the TB outbreaks of 2008 and 2013), infected cattle co-located in the same airspace, and in many parts of England and Wales, the badger.

### **SO WHAT CAN BE DONE?**

#### **Basic biosecurity principles.**

To reduce the risk of “buying in” infection via goats, the most obvious course of action is to have the purchased goats tested prior to movement as a condition of sale. If large numbers of goats are involved, testing a significant proportion should suffice. This does NOT however reduce the risk to nil, as there could still be goats which were incubating the disease at a stage when no available test could detect it. Typically, in cattle it is 6 to 8 weeks from the day of infection before any currently available test can detect that infection. Importantly, the animal is already infectious to others throughout most of that period. The same is assumed to be the case in goats.

Ideally therefore, incoming goats should be isolated for around 8 weeks and then retested before they join the herd. Even these measures are not a guarantee that nothing will slip through the net, but it does reduce the risk to a reasonable minimum.

If you are buying in a small number of goats e.g. breeding stock then, both pre and post movement testing of all of them should be considered. In both cases the risk involved depends on the TB status of the area around the herd you are buying from.

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Currently, if the herd of origin of the goats is located in Wales, or in the annual cattle TB testing area of England roughly delineated from Derbyshire to Dorset and all places west, or in East Sussex, then these are areas where TB is a serious risk. Elsewhere in the UK, the risk is lower, but not zero, and remember that the situation is not static, the TB status of an area may change as TB is brought under control, or moves into a new area.

### **Wildlife vectors**

Grazing goats in an area where TB in badgers is at a high level will always be a risk, particularly as they are browsing animals and thus more likely to “forage” in hedgerows, woodland where badgers are more likely to be active.

For housed goats the risk is of infected badgers coming into housing and either infecting goats directly or indirectly via contamination of their food supplies. Maize silage either in clamps or when spread out to feed is highly attractive to badgers, and can be readily contaminated by TB excretions this is particularly important during the hours of darkness when buildings are quiet and less active.

When taking steps to reduce access by badgers to goat housing, each holding will differ, but the following points should be considered (adapted from Defra publication “*Do you know what is happening in your feed store?*”)

### ***Keeping badgers away from stored goat feed and straw bedding.***

- Make walls and doors of feed and bedding stores secure, especially if they are used for storage of straights or include concentrate feed.
- Ensure feed-store doors are shut, especially in the evening / at night as this is the peak time for badger visits.
- Ensure doors and walls of feed-stores have no gaps and are inaccessible to badgers.
- If your feed store is accessible to badgers and too costly to modify consider storing your feed in a different building or in secure containers.
- If building a new feed-store, consider ways of preventing wildlife access, foundations 45cms deep will prevent badgers burrowing beneath them.

### ***Make farmyards less attractive to badgers***

- Avoid leaving feed easily accessible in the farm yard as this is an attraction to badgers.

**TALK TO YOUR VET ABOUT THE MOST APPROPRIATE MEASURES ON YOUR FARM**



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- Avoid feeding goats on the ground in the farmyard, although it is accepted that this is common practice on many goat units. Consider ways of preventing badgers from gaining access to feed.
- While it may be difficult to keep badgers out of goat housing completely, it makes sense where possible to make such housing more difficult for badgers to access.
- Ensure silage clamps are well covered and consider protecting the open face by electric netting at times when access is not needed.

### **Be aware of high risk areas at pasture.**

- Be aware that feeding at pasture may be a higher risk than feeding in the farmyard.
- Be aware of high risk areas such as badger latrines and active setts at pasture.
- Avoid allowing goats access to woodland.
- Feed and water troughs can become contaminated by wildlife so keep an eye out for such signs of contamination and clean these out regularly.
- If using molassed, salt or mineral blocks, consider taking measures to make them more difficult for badgers to access e.g suspending them.
- Be aware that badger carcasses are a potential source of disease and dispose of them sensibly.

### **TESTING GOATS FOR TB.**

Currently the comparative skin test as used in cattle is also used in goats in GB, with generally accurate results. In the 2008 Golden Guernsey incident it proved to have a high predictive value (all the test reactor goats had typical lesions of TB and/or were culture-positive at post-mortem examination), though the numbers involved were too small to be statistically significant. A number of serological blood tests are under investigation to assess their accuracy when used in goats, but none as yet are commercially available or officially approved by AHVLA and their ability to detect infected animals is largely dependent on a prior intradermal injection of tuberculin. Skin testing is possible in Johne's infected / vaccinated goats. The use of avian and bovine tuberculins in the comparative skin test minimises the probability of false positive results in TB-free herds. However, if a Johne's infected/vaccinated goat herd happens to be infected with TB as well, this may result in a skin rise in response to the avian tuberculin that may mask a genuine reaction to bovine tuberculin, resulting in a decrease in sensitivity of the screening test for TB with some goats infected with *M. bovis* being wrongly classified as negative or IR (i.e. false negative)

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### DEFRA / AHVLA MANAGEMENT OF TB IN GOATS.

TB surveillance in goats relies on reports from post-mortem inspections e.g. at slaughterhouses or diagnostic laboratories. Detection of suspect lesions of TB at slaughter and isolation of *M. bovis* in goats are notifiable in ENGLAND under the Tuberculosis (England) Order 2007.

AHVLA will issue movement restrictions under the Tuberculosis Order where a reasonable suspicion of TB infection exists. As there are no specific statutory provisions for compensating owners for compulsory slaughter of goats (Defra will consult shortly on obtaining these powers), Defra will therefore seek the owners' cooperation when TB is suspected and restrictions served. If the owner agrees, Defra will pay for skin testing, reactor removal/slaughter and the post-mortem and culture work done by AHVLA but no compensation will be paid. Private slaughter without compensation is also an option. Restrictions on the rest of the herd remain in force until any reactors die or are privately slaughtered and all other goats in the herd have undergone two clear skin tests. Where goats are co-located with or contiguous to an infected cattle herd, AHVLA will restrict the goats until skin tested with negative results.

Private skin testing of goats in the absence of confirmed *M. bovis* infection is possible, but permission should be obtained in advance from AHVLA. If reactors are found, the herd will be placed under restriction and will be unable to sell goats other than direct for slaughter until or unless the herd is tested clear as above.

In WALES, goats, deer and camelids are all covered by specific TB regulations, and a test on any of these species can be requested if it is considered to be at risk. Under this legislation, in Wales, compensation is payable where TB reactors are found.

### FURTHER INFORMATION:

A Strategy for achieving Officially Bovine Tuberculosis Free Status for England can be viewed at:

<https://www.gov.uk/government/publications/a-strategy-for-achieving-officially-bovine-tuberculosis-free-status-for-england>

Some practical advice on badger control can be found on the South West TB Advisory Service website at:

<http://www.southwest-tbadvice.co.uk/biosecurity/bicton-college-biosecurity-project>

In Wales the "TB Eradication Programme"

<http://wales.gov.uk/topics/environmentcountryside/ahw/disease/bovinetuberculosis/bovinetb/eradication/?lang=en>

***Research into TB in all species, including goats and badgers is ongoing, and this guidance will be updated as and when new practical applications become available.***

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