

The Cost of Orf

Tackling a disease that is the master of deception

Contagious pustular dermatitis or scabby mouth are vivid descriptions of the relatively common parapox virus we usually refer to as orf. Unfortunately it is all too common on a number of sheep farms with costly effects on both ewes and lambs.

Orf is a very successful virus because it is a master of deception. In the early stages of infection the virus confuses the sheep skin cells into producing alien proteins and growth factors that in turn cause the typical proliferative overgrowths of skin. The virus produces further alien proteins that down-regulate aspects of the sheep's immune system, so normal defense mechanisms fail to work.

In a young or un-vaccinated lamb these alien factors mean that lesions can last for four to six weeks before a lamb can finally shrug off the disease.

Results from a study

Working with Castle Veterinary Practice, an XLVets practice in Barnard Castle, we undertook a case-control study of orf in young lambs on eight commercial farms in north-east England, funded by an MSD Animal Health ruminant research bursary and published in the *Veterinary Record* in June 2012. Our study population comprised naturally infected un-vaccinated lambs that were suckling on their mothers.

Measurements were made of the

growth of 65 orf-affected lambs and the same number of unaffected contemporaries. On one small farm orf developed in 23 out of the 24 twin lambs. This demonstrated how widespread the disease can become in a flock, but unfortunately the lack of suitable controls meant the data from that farm was unusable for the study.

The farms were visited by a vet on a fortnightly basis to measure the lambs. The first visit occurred when more than three lambs were showing signs of orf and this was usually a week or so after the start of the outbreak.

At the first visit, the lambs were between two and five weeks old and there was no significant difference between the average weight of the affected (17.6kg) and unaffected (18.6kg) lambs.

By the third visit when the lambs were six to nine weeks old, there was a highly significant difference of 2.2kg in the average weights of the lambs with orf (22.3kg) compared to the lambs that were not affected (24.5kg).

This difference was seen in all lambs affected with orf, even if it was only a small patch on the body away from the mouth. If the analysis was restricted to lambs with orf around their mouth, the average weight difference was 2.5kg.

On five of the lowland-type farms in the study it was found that for four out of every five lambs with orf, the ewe also had orf on her teats or udder. There was also a very high rate of mastitis on these



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farms so that 14 per cent of ewes with clinical orf also had mastitis.

Orf costings

The economic effects of outbreaks of orf were calculated using average farm figures (EBLEX Business Pointers 2012) and results from this study. Increased ewe replacement costs, increased lamb mortality, decreased lamb growth rates, increased lamb feed costs and direct treatment costs all affect the cost of production.

For the calculation it was assumed that an orf outbreak might increase mastitis levels by five per cent and that the weight discrepancy of 2.2kg found at the end of the study might remain until weaning. Arguably both of these are conservative assumptions and there is no doubt that a growth check in a suckling lamb can have a significant effect on both slaughter dates and carcass quality.

Despite these conservative assumptions, worrying costs were found:-

- Orf in 40 per cent of lambs was calculated to increase the cost of production from 355p/kg carcass to 366p/kg carcass on an average lowland farm, thus reducing the profit margin per ewe by £3.31.
- Should orf spread to 80 per cent of the lambs on a lowland farm, the cost would be £6.54 per ewe.
- Should the deadweight lamb price drop by 10p/kg for each week that slaughter was delayed due to poor growth rates, orf in 80 per cent of lambs would cost a staggering £11.46 per ewe on an average lowland farm.
- On an average farm in a less-favoured area (LFA), orf in 40 per cent of the lambs was calculated to increase the cost of production from 333p/kg carcass to 340p/kg carcass and thus reduce the profit margin per ewe by £2.17. Orf in 80 per cent of lambs on an average LFA farm would cost £4.27 per ewe.



Orf is a zoonose and can cause painful sores.

Preventing orf

There is a widely-used vaccine (Scabivax Forte from MSD Animal Health) which allows for cost effective control on affected farms. However, the vaccine is live so it must be used with care and vaccinated animals may shed live virus for up to seven weeks.

Immunity to orf develops in a localised manner, which has two consequences: the vaccine must be scratched into the skin rather than injected and there is no transfer of immunity from ewe to lamb in the colostrum. It can take up to four to eight weeks following vaccination for immunity to develop.

Advice on using the vaccine:-

- Only use the vaccine under veterinary advice and when you know there is already orf present on the farm.
- Vaccinate clean, dry lambs in the axilla (or 'armpit') at any time after birth but ideally at turnout.
- Only vaccinate pregnant ewes 7-8 weeks before lambing and definitely no later.
- If vaccinating ewes with lambs at foot, then use the area behind the front leg and ideally avoid doing so unless vaccinating the lambs at the same time.
- Examine vaccinated animals after 7-10 days to ensure an effective vaccination



Lambs with orf can cause significant damage to udders, often resulting in mastitis

'take' – i.e. small pustules or scabs along the line of the scratch.

- Use gloves to handle the vaccine or orf-affected sheep.

Treating orf

Generally the orf infection will clear up by itself after a few weeks, but secondary

bacterial infection may need to be treated, either with a topical antibiotic spray or, if very swollen and sore, an injectable antibiotic.

Mastitis should be treated promptly with both an injectable antibiotic and an anti-inflammatory, under the advice of your vet.

A number of farmers use sulphur-based tablets to 'treat' orf, though there is no published information on their effectiveness. If you are planning to handle the mouths of orf-infected lambs then please wear gloves as there is a real danger of both getting bitten and catching orf.

Orf is a nasty zoonotic virus which can cause painful sores on human skin. In extreme cases, it develops into a systemic condition causing widespread swelling and pain.

In summary, orf is a virulent virus which can have costly consequences to successful lamb production so farmers would be well advised to discuss suitable control options with their vet. □

Dr Fiona Lovatt advises farmers on sheep flock health matters, often working alongside their local vet. She is involved in various sheep health research projects and teaches veterinary students at Nottingham University. She is the president-elect of the Sheep Veterinary Society. Find out more at www.flockhealth.co.uk.



It can take four to six weeks for lambs to get over an orf infection