Livestock Logic
Vet & Ag Consultants | Parasite & Feed Analysis

60 Portland Rd Hamilton 3300
Tel: (03) 5572 1419

Campylobacter Information Sheet

This disease is common throughout many sheep flocks in Australia. Abortion storms strike at irregular intervals, generally years apart when a naïve group of animals get exposure to the organism in late pregnancy causing abortion in up to 50% of ewes. Research suggests that there are annual losses in most flocks causing a reduction in maiden ewe marking percentages of between 5-10%.

Cause and spread of Campylobacter

The route of infection is through oral ingestion of the bacteria, *Campylobacter foetus*. Ewes appear to be more susceptible in the last two to three months of pregnancy. Once infected the bacteria spreads throughout the body and the organism has been isolated from the gastrointestinal tract of clinically normal sheep. Any discharges from aborted ewes also contain the organism, eg. Foetus, placenta and associated fluid, these appear to be the sources for other animals. Cold and wet weather allows the organism to survive for increased periods in the environment. Intensive stocking rates appear to facilitate increased spread of disease between animals.

In most instances ewes tend to rapidly clear the infection and do not stay as a source of infection for extended periods. There are reports of occasional carrier animals. Experimental work has shown that bird faeces can be a good source of the organism, causing infection in susceptible sheep.

Typical Presentation of Campylobacter

The most common presentation of Campylobacter is an abortion outbreak within 6 weeks of commencing lambing. There are obvious abortions (premature dead foetuses) as well as underweight weak live lambs. Abortion rates can be as high as 60%, but typically between 10-30%. Some report that if infected during early pregnancy there are no adverse effects, although difficult to be certain as detecting abortions from ewes in early pregnancy is more challenging due to absorption of the foetus without external signs.

Controlling Abortion Storm

Ewes that have aborted should be isolated immediately from pregnant ewes as their uterine discharges as well as faeces are a source of infection for rest of mob. Foetuses and membranes should be collected and disposed of, preferably burnt. Must wear gloves when handling aborted material and wash hands etc well after handling. Antibiotic cover can be beneficial, but the practicality/economics varies between situations and will depend on, ability to yard ewes, move to new/clean paddock etc. It is advised to discuss treatment options with Livestock Logic veterinarians.

Prevention

OVILIS C is the only approved vaccine available for use. It is a highly effective vaccine that is administered to maiden ewes prior to joining and again at joining. Cost of the vaccine is around $1.00 per vaccination plus labour. For full protection require two doses 4- 6 weeks apart with annual booster. As the benefits are lower in mature age ewes, it is common to only vaccinate maiden and hogget ewes. In stud situations where animals have increased value and the gold standard is recommended it is suggested to vaccinate all ewes annually.

Partial budget

Table 1: Lost lambing percentages due to 1 in 10 year abortion storm causing 10% lamb loss due to Campylobacter

	Lamb value	Abortion storm %	Frequency of abortion storms (yrs)	Cost of abortion storms over 5 years	Total cost over life of ewe
No vaccination	$50	10	1/10	$2.50/ewe	$2.50

Table 2: Lost annual weaning percentage in maidens due to Campylobacter

	Loss of annual weaning % in maidens	Cost of annual weaning percentage in maidens	Cost over life
No vaccinating	8%	$4.00/ewe	$4.00

Table 3: Lost annual weaning percentage in mature ewes due to Campylobacter

	Loss of annual weaning % in mature ewes	Cost of annual weaning percentage loss in mature ewes	Cost over life
No vaccinating	2%	$1/ewe/year	$5.00

Table 4: Cost of vaccination with Ovilis C

	Cost of vaccination (life)	Labour	Total
Vaccinating maidens only	2 x $1.00	$0.3	$2.30
Vaccinating all sheep annually	6 x $1.00	$0.9	$6.90

Table 5: Cost/benefit analysis of vaccination

	Extra lambs	Income	Cost	Increased profit/ewe/life
No vaccinating	0%	$0.00	$0.00	0
Vaccinating maidens	8%	$6.50	$2.30	$4.20
+ adults annually	2%	$5.00	$4.60	$0.40

Partial budget assumptions:

- 1 in 10 years we see 10% abortions occurring across flock due to Campylobacter. Very conservative, can be as high as 60%, typically 10-30% though. Have assumed that 2 vaccines in first year is sufficient to stop these storms. If flock has little or no campylobacter circulating then would require annual vaccination to reduce possibility of infrequent abortion storms.
- Annual maiden weaning percentages can be improved by 8% with vaccination
- Annual mature age ewes weaning percentages can be improved by 2% with vaccination
- Annual weaning percentage of 100%
- Maidens vaccinated prior to 18mth joining, mature ewes kept on property until 6 years

The economic implications of a reduction in lambs weaned across farm of 30% in one year can be large and should not be under-estimated. While benefits of Campylobacter can be seen annually, it is likely to be a good risk reduction strategy to prevent large abortion storms.

Why maiden ewes are more commonly affected

Once infected with Campylobacter animals are thought to maintain lifelong immunity. Abortion storms rely on infecting a naïve flock or group of animals. Maiden ewes are obviously younger and have been on a property for less time than older animals. This reduces their likelihood of exposure to aborted material, as they are often run as a group of non-pregnant animals. Since the most common time for spread is during lambing season and these ewes are isolated from lambing ewes at this time it is clear why they are often a naïve group of animals when they are joined at 18 months of age. Once they are exposed to Campylobacter, abortion may result, if aborted material is then ingested by other naïve ewes, subsequent abortions and a snowball effect can result. This mob of ewes now has acquired immunity and will not be affected when exposed again later in life.

If ewes get exposure when not pregnant then there is no consequence and ewes also maintain lifelong immunity.

Ewe lambs are at even greater risk as they have not been on property during lambing season and even less likely to have had exposure to Campylobacter. Effects from vaccinating ewe lambs are likely to be even greater than that compared to maiden ewes.

Introduction of Campylobacter

In most cases Campylobacter is active within a flock but causes limited clinical signs and abortion as animals get exposure at a time that does not cause abortion (there is only a 2-3 month window in their life when exposure causes abortion), assuming that most are exposed by the time they have their first lamb. If a flock is completely naïve (very rare) then the disease is most likely transmitted from the following:

- Introduction of new stock that carry Campylobacter
- Aborted material from neighbouring property being brought onto farm by foxes and contaminating pasture
- Birds that have been infected with Campylobacter excreting the organism in their faeces and contaminating pastures
    - This is likely to be a major source of infection when stock are fed feeds that are attractive to birds and contamination occurs at feeding site. Once stock infected and excrete organism further contamination and spread between flock results.

Intensively grazed animals (drought lots and cell grazing) likely to have increased risk over less intense set stocked systems.

Livestock Logic Recommendations

Vaccinate with Ovillis C prejoining:

1. Rising 2-y-0 maidens: *All commercial producers*
2. Ewe lambs if joining them
3. Initially 2 doses 4 – 6 weeks apart pre joining
    - *can give the 2nd injection post joining*
4. Annual booster to adult ewes on stud properties.
    - *unlikely to be economical in a commercial enterprise*