524 Te Rapa Road
PO Box 10304
Hamilton 3241
T 0800 787 522

BOVINE ABORTION INVESTIGATION:

Clinical history: Provide details including: number of cows/heifers/mobs affected, estimated stage of gestation or calving date, vaccination regime and any other details known (such as stress factors, nutritional status, movements in/out of herd)**.**

Fetus/placenta: either submit whole to SVSlabs for necropsy and tissue harvesting or collect and submit as follows. If possible, measure crown-rump length for gestational age.

Samples to harvest and submit:

1. **From the Fetus**
   a) **Fetal stomach contents (FSC):** Sample as aseptically as possible from the fetal abomasum.
   b) **Fixed Tissues** including: **brain, lung, liver, heart, skeletal muscle, kidney, spleen and any gross lesions (e.g. skin). Stillbirths, add thyroid and adrenal glands.**
   c) Fresh Tissues: including: **lung, liver, kidney and any gross lesions. For stillbirths, add adrenal gland.**
   d) Fetal fluid: Thoracic fluid or fetal heart blood.
2. **Placenta: When available, placental samples are very important.** Fixed and fresh samples. Take several cotyledons, particularly for histopathology (as lesions can be regional).
3. **From the dam:** serum.

Abortifacient pathogen – PCR test	**Sample(s)**
Aspergillus fumigatus	FSC
Bacillus licheniformis	FSC
BVDv	FSC
Leptospira	Fresh tissue: kidney, lung or placenta
Listeria monocytogenes	FSC
Listeria ivanovii	FSC
Mortierella wolfii	FSC
Neospora caninum	FSC
Ureaplasma diversum	FSC
Key: FSC: fetal stomach contents	

PCR panels	**Pathogen PCR tests included**	**Sample**
Early term	BVDv, Ureaplasma diversum, Neospora	FSC
Mid Term	Listeria (monocytogenes and ivanovii) Bacillus licheniformis, Neospora, Ureaplasma diversum	FSC
Late term	Aspergillus fumigatus, Mortierella wolfii, Ureaplasma diversum, Leptospira, Neospora	FSC

524 Te Rapa Road
PO Box 10304
Hamilton 3241
T 0800 787 522

Laboratory Testing Notes:

a. Histopathology (fetal tissues and placenta) to provide evidence of likely causes to aid selection of individual PCR tests. Brain: is particularly useful for investigation of neosporosis (even if semi-fluid at necropsy/in pieces, it'll harden in formalin). Include brain stem if possible. Good fixation requires 10:1 Formalin:tissue, do not squeeze tissues into a pot like pickles in a jar. Tissue samples should be approx. 0.5cm thick for optimal fixation.

b. Fresh tissues: For cultures (bacterial/mycology), leptospira PCR (kidney, lung, placenta) and for other PCR tests on mummified fetuses where no FSC available.

c. PCR tests: most PCR tests are performed on the fetal stomach contents. Leptospira PCR on fresh tissue as above. Interpretation of results is best done in collaboration with the histopathology results.

d. Bacterial/mycology cultures: PCR tests have mostly replaced cultures due to high sensitivity/specificity/speed. Cultures maybe preferred if a general micro 'screen' is required (more economical than doing the full range of PCR tests).

d. Fetal serology: On fetal thoracic fluid/fetal heart blood. E.g. for fetal BVDv serology, if viral exposure occurred when fetus was immunocompetent (PCR negative), but note that fetal BVDv seroconversion may not mean it is the cause of abortion.

e. Dam serology: Particularly useful for neospora investigations as the antibody levels peak for several weeks following reactivation of the protozoal organisms in the dam. In other infections such as leptospirosis, or BVD, dam serology may give an indication of exposure but antibody levels may have peaked/waned by the time abortion occurs, hence these tests are more useful when done in collaboration with other fetal tests.

f. PCR panels: These packages can be used to test for pathogens according to most commonly associated gestational stage. However**,** there is much overlap/variation in the stage at which pathogens can cause abortion following infection, so where specific pathogen(s) are suspected (particularly from histopathology results) individual tests can be selected.

Photos: clinical or necropsy photos can be sent to info@svslabs.nz (please include client name/address and cow ID if case number not known).