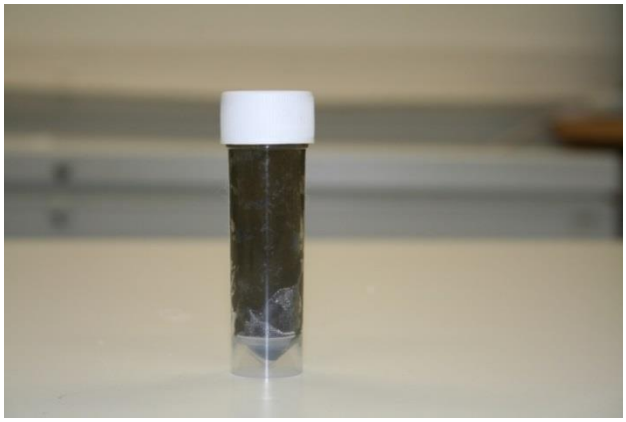
Getting the best diagnostic samples

If you're not sure what sample to take, tube to use or test - please ring us and we'll advise as we're here to help.

Faecal parasitology



Containers: When submitting a faeces sample (or advising a client how to) we recommend a leak-proof container such as a pot with a screw on lid **NOT** a glove!

Quantities: For faecal parasitology a useful aide memoire for farmers is:

Work requested	Amount required: "Enough for a…."
Worm Egg/Coccidial Oocyst Count (WEC)	Heaped teaspoon (that's about 3g)
Lungworm detection	Heaped dessertspoon (about 10g)
WEC, fluke and lungworm detection	Heaped serving spoon (about 14g)

- If you only have a small faecal sample available and you want to carry out liver fluke detection it's worth noting that the liver fluke faecal coproantigen ELISA test only uses 0.5g faeces.

Submission form details: Ruminant Enteritis

Please state the age of animal on form when submitting faeces for enteritis packages as:-.

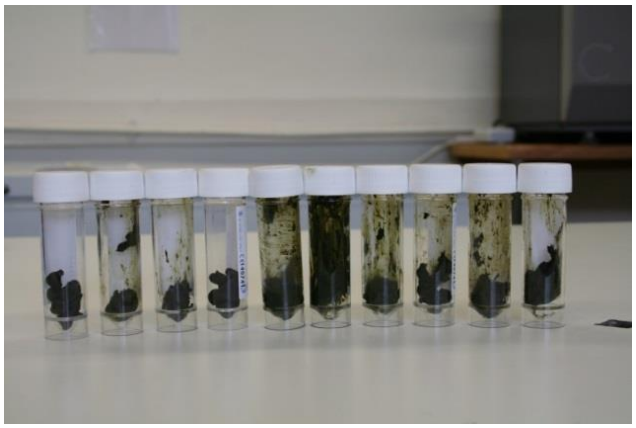
- We then carry out age-appropriate tests and can give you a clearer guide as to the significance of the results.
- What we test for varies depending on whether the animal is; 1-5 days, 6-21 days or over 21 days, so when you write "one week" be sure the animal in question is not actually just 5 days old!

Pooled/bulked faeces samples:

- Ask the farmer **not** to pre-pool the faeces prior to submitting them to the lab. We will accurately weigh a sample from each animal into the pool for a more representative result.

- The interpretation relies on each animal contributing an equal amount of faeces to the pool.

- The test for lung worm and the liver fluke faecal coproantigen ELISA have not been validated for bulked/pooled samples. We can carry out these tests on samples when requested but remember you may get false negatives, i.e. there are no guarantees that the test will find lungworm or fluke if it is there.



- Why? If there's a mix of positive and negative samples then there will be dilution of the positives whether you are looking at the fluke coproantigen test or lungworm larval detection. The final result may not be an accurate representation of the group.

- For example; the work we have done shows that if you have a single sample that is highly positive on the fluke coproantigen ELISA and you make a pool, using equal amount of faeces, with nine negative samples then the pool result will be positive. However if you take five very low positive samples and pool them with five negative samples then your final pool can be negative i.e. you get a false negative.

Blood, swabs, scrapes and fluids

Blood

- Our serology systems are automated (using robotics) so a minimum of 1ml of serum or 2ml of whole blood is required. Please ensure blood tubes are filled as full as possible.

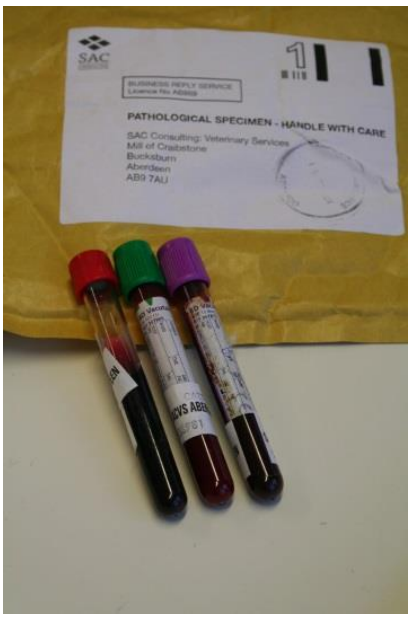
- Avoid using 10ml (larger diameter) tubes as these are too wide to be used in the analyser. Please use standard 7ml tubes wherever possible.

- If you require multiple tests please consider submitting an extra tube of blood to be on the safe side.

- Where multiple tests including BVDV PCR are requested we need two tubes, one of which is dedicated to the PCR system.

- Green-top tubes (**heparin**) are needed for certain biochemistry packages for the **GSH-PX** measurement i.e. ovine or bovine trace element, ill-thrift packages and ruminant myopathy profiles.

- **MCF** virus detection testing requires whole blood (**heparinised** or EDTA i.e. green or purple tops) **NOT** a red-top (clotted).



- A **grey top** is required (Potassium Oxalate/Sodium Fluoride) for **glucose** determination.

- **EDTA** (purple top) for **haematology.**

- Whole blood (**heparin** or EDTA sample) is needed for **lead.**

- Mix green-top tubes (heparin) when sampling. Take care to gently (but adequately) invert, to mix the content. Sometimes we receive tubes where they haven't been mixed promptly or thoroughly and the blood has clotted despite the anticoagulant.

- Try to avoid submitting haemolysed samples. Haemolysis reduces the range of determinations we can do e.g. GGT or ZST and can alter levels of some determinants.

Packages: We offer "fatty liver" and "downer cow" amongst other biochemistry profiles to save trying to remember tests needed for a particular disease syndrome. These profiles are generally discounted compared to the price of individual samples.

- **Bacterial swabs**: Out of date swabs should be avoided. Amies charcoal may be preferable to plain swabs for bacterial cultures, since plain swabs often dry out in transit.

- **Sheep scab**: the preferable sample is multiple skin scrapes taken by the vet. However if farmers are following sampling instructions remind them to:

    - Sample from the edge of the lesion
    - Submit wool and lesions with plenty of scabby or crusty material on them. Insufficient sample and not enough scab material can give rise to false negative results
    - Pluck wool, this is preferable to cutting it

- **Sheep and cattle abortions**: The bovine abortion package includes maternal serology (5 tests) where maternal blood is submitted with the foetus. If you go out to blood test a cow for a Brucellosis investigation and discuss submission of the foetus for further testing please ask the farmer to also take some of the placenta if it's available. Ovine placenta is the sample of choice for diagnosis of Enzootic Abortion of Ewes (Chlamydial abortion). In cattle and sheep a section with cotyledons is the most useful. Before the start of lambing or calving, a reminder in the practice newsletter of what to submit to investigate the cause of abortion, may be worthwhile.

- For cases of suspected **staggers**: Where aqueous or vitreous humour is taken for magnesium levels it's worth stating whether it is aqueous or vitreous. Aqueous is not as reliable as vitreous samples for predicting pre-mortem serum Mg levels, it is also and harder to collect without contamination than vitreous humor (VH). VH is the sample of choice as it reliably predicts pre-mortem serum levels for up to 24 hours after death. It can also be used for any analyte that diffuses easily through this aqueous matrix such as Ca, BOHB and urea.

Collection of vitreous humour *is easy using a 19g vacutainer or with a syringe attached to a 14 to 18-gauge 1-inch needle inserted through the cornea into the VH, almost parallel to and avoiding the lens. Gently aspirate up to 1ml of clear VH. The collagenous gel of the VH may clog up the needle so the position and degree of suction may need to be adjusted. If the sample contains blood or particulate matter, then sampling should be repeated on the other eye into a fresh red top tube. If the second sample is contaminated with blood, centrifuge the "cleaner" one promptly and pipette off an uncontaminated sample. Plain blood tubes are suitable containers for submission.*

- **Urine samples**: preferably in boric acid for bacterial culture plus a plain tube.

- **Milk samples**: bronopol preservative is essential if sample is being submitted for serology and BVD virus PCR but must **not** be added if it is a mastitic sample for bacteriology.

Submission form Please complete the submission form with details of signalment, history and clinical signs. This will help us help you and improve our surveillance for new and unusual diseases.