

PARASITOLOGY

Sample Submission Guidelines

Diagnostic Services Unit (DSU) – UCVM



Diagnostic Services Unit (DSU)

Phone: 403-220-2806

Email: dsu@ucalgary.ca

Receiving Hours:

8:30 am to 4:30 pm Monday to Friday, closed on holidays and weekends.

Clinical Skills Building

11877 85th Street NW
Calgary AB, T3R 1J3


Currently, the **DSU Parasitology Laboratory** operates as a fecal preparation station, offering **centrifugal fecal flotation** using a sugar flotation solution and **fecal egg counts** for **bovine** and **small ruminant** species. For other services or inquires, please contact the Parasitology Lab or the DSU unit.

For service expansions or changes, refer to the Diagnostic Service Unit (DSU) website: <https://vet.ucalgary.ca/departments-units/dsu/home>

Diagnostic Parasitology Lab (DSU), UCVM: parasitologydsu@ucalgary.ca

- Dr. Sawsan Ammar, DSU Clinical Parasitologist
- Dr. Camila Meira, DSU Parasitology Technician

Sample Submission Requirements:

 **Type of Samples Accepted:** Only feces, submitted by licensed veterinarians (no direct submissions from owners). See link for more details <https://vet.ucalgary.ca/departments-units/dsu/submissions>

 **Submission Form:** Must be fully completed by the veterinarian with clear details on tests requested and relevant animal information.


Please reach out if you need help with filling the form.


- For multiple submissions please use the last page of the submission form to list all the animals in the same submission form. Do this for samples submitted to be tested individually or for samples submitted for pooling.
 - Links for submission forms for parasitology testing:
 - Bovine species:
<https://vet.ucalgary.ca/sites/default/files/teams/54/Submission%20Forms/Bovine%20Submisson%20Form%20fillable.pdf>
 - Small ruminants :
<https://vet.ucalgary.ca/sites/default/files/teams/54/Submission%20Forms/Small%20Ruminant%20Submisson%20Form%20-%20no%20Parasit%20fillable.pdf>
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Sample Submission Requirements:

Container Specifications:

- Use sealable, leak-proof containers (e.g., screw-cap or Ziplock bags). Preference should be given to screw-cap, plastic containers.
- Each sample should have a secondary leak-proof container (e.g., a large Ziplock bag), with absorbent material if shipped.
- Do not overfill the containers. Remove excess air from plastic bags or vacuum-seal the sample to preserve its freshness for longer.

 **Labeling:** Include owner's name, animal species and ID, collection date, and any relevant notes.

 **Shipping Timeframe:** Samples should reach the lab within 1-3 days post-collection and accompanied by a submission form for each sample.

 **Sample Retention:** All submitted samples become DSU property and are retained for two weeks before disposal or repurposing. To retrieve samples, submitters must arrange this with DSU prior to submission.


Examples of acceptable containers:




Examples of unacceptable containers:




Fecal Sample Collection Guide:

 **Preferred Method:** Rectal collection for **accuracy** and sample freshness. Put on a clean glove and insert one finger into the rectum. Gently push out fecal contents onto the palm of your gloved hand. After collection, transfer the fecal sample into the appropriate container. **Do not submit samples in gloves.**



 **Collection from Ground:** Ground-collected samples **must** be freshly voided, with the animal defecating in view to ensure correct animal identification (if interested in tracking fecal egg count (FEC) for individual animals) and freshness. Collect from the top, avoiding any part touching the ground or potentially not fresh.

 **Sample Size:** Minimum of 15-20 grams (around the size of a tennis ball).


 **Storage Conditions:** Keep samples refrigerated at 4°C until shipping. Do **NOT** freeze them, as freezing can destroy parasite eggs and result in false negative results.

NOTE: *After collection, release as much air from the container as possible. Label all containers, place the samples in a Styrofoam container, and securely close the lid. Complete the appropriate forms and send the samples to your veterinarian or the laboratory for processing. Results will be available within 3-5 days from the date we receive your shipment.*

Fecal egg counts versus fecal float:

-  Fecal flotation is a diagnostic technique used to detect parasite eggs by suspending them in a flotation solution, allowing them to rise to the surface and be collected on a glass slide for microscopic examination. This method can be used in animals displaying clinical signs when parasitic infection is suspected. The results of this test are reported as high, moderate, or mild without an exact egg count.
-  Fecal egg count (FEC) is also a flotation method; however, in this case, the amount of feces is measured, parasite eggs are counted, and a formula is applied to calculate the fecal egg count per gram of feces (EPG). This can be done using the Modified Wisconsin method or the Modified McMaster method, among others. Both methods have their advantages and disadvantages. The Modified Wisconsin method is highly sensitive, with a detection limit of 1–2 EPG. However, it may lose accuracy at higher egg counts (above 500 EPG), where other methods, such as McMaster's, are preferred. We offer McMaster fecal egg count (detection limit: 16.66 EPG) for small ruminants, as they tend to have higher egg counts, and Modified Wisconsin's method for cattle, which usually have lower fecal egg counts. Please reach out to our team if you suspect high egg counts in your animals so we can adjust our methods accordingly to ensure the most accurate results.

Individual versus pooled samples:

-  Parasite egg shedding varies among individuals on a farm, with some animals acting as **high shedders**, contributing disproportionately to pasture contamination without showing clinical illness. **Pooling samples** is a cost-effective method for monitoring **parasite burden and pasture contamination**, offering a practical alternative to individual testing. Samples should still be **submitted individually**, as pooling is performed in the lab to ensure equal representation from each sample.


Special notes:

- ❑ For sample submission for "**Fecal Egg Count on Pooled Samples**" test, please collect 15-20 fecal samples from different individual animals (at least 15-20 gm each) and submit each sample in a separate resealable leak proof bag or tightly locked container. **Don't pool samples.** The parasitology lab team will do this.
- ❑ If you have a small herd and 15-20 individual samples are not feasible, please communicate with our team and we will inform you on the number of samples to be submitted depending on your herd size. .
- ❑ If any cestode segments, worms, or abnormal blood are found in the feces, indicate this on the form.
- ❑ Some developmental stages of protozoan parasites are too fragile to withstand transport by courier. Ideally, testing should be performed at the practitioner's laboratory by examining saline wet mounts of fresh, warm feces. Alternatively, a sample can be examined at the diagnostic laboratory if delivered within 30 minutes of passage (*Please communicate with the lab, as this needs to be done via direct smear*).
- ❑ Most parasites (except certain protozoans) are detectable and identifiable in fecal samples examined up to three days after collection, provided the samples have been refrigerated. If more than three days may elapse between collection and examination (or if samples cannot be refrigerated), please contact the lab for instructions on how to preserve the samples for longer periods for fecal egg count or fecal float submissions.

Fecal egg count testing limitations:

- 1. Protozoal Detection:** Limited detection for some protozoa, such as **trichomonads**.
- 2. Flotation Solution:** We use only a sugar flotation solution with a specific gravity of approximately 1.2 to float parasite eggs. Please note that different parasites float at different specific gravities. While this solution is effective for most eggs, it may have limitations. Larger and heavier eggs, such as those of flukes, or certain parasites like *Buxtonella spp.*, may not float properly or may be distorted by sugar flotation. If you are concerned about specific parasites or are unsure if this test is appropriate for your case, please reach out to us—we are happy to assist!
- 3. Fecal Egg Counts:** Fecal egg counts are highly variable and influenced by factors such as age, sampling time, sex, and counting method. If you have any concerns about the results, feel free to discuss them with us.

For inquiries or specific concerns, reach out to:

 **Diagnostic Parasitology Lab (DSU), UCVM:** parasitologydsu@ucalgary.ca

- **Dr. Sawsan Ammar, DSU Clinical Parasitologist**
- **Dr. Camila Meira, DSU Parasitology Technician**

Useful resources:

- The University of Calgary sheep parasites website: <https://vet.ucalgary.ca/research/sheep-parasite-control/home>
- The Diagnostic Service Unit (DSU) website: <https://vet.ucalgary.ca/departments-units/dsu/home>
- Handbook on internal parasites of sheep and goats: <https://vet.ucalgary.ca/sites/default/files/teams/29/Handbook%20for%20the%20Control%20of%20Internal%20Parasites%20of%20Sheep%20and%20Goats.pdf>