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**School of Veterinary
 Medicine and Science**



TRACE ELEMENT AND METABOLIC PROFILE SERVICE

NUVetNA is a Laboratory Service based in the University of Nottingham’s School of Veterinary Medicine and Science. NUVetNA is designed to offer a diagnostic service to farmers through Veterinarians. The service will report the analysis and will leave the interpretation to the Veterinary Practitioner or appropriate para-professional (eg Nutritionist). Communication will be, if possible, by e-mail.

The service being non-interpretative will allow us to endeavour to complete and e-mail metabolite and haematology analysis within 2 days. However the trace element profile requires batching of samples, which are analysed every two weeks. We will endeavor to complete and e-mail these results within 2 weeks, but it may be a day or two longer if you catch the front end of a batch.

Profile options	Tests included	Cost per animal		
Trace Element (LH and serum required) (Basic LH Haematology included)	Includes Plasma Cu, Se and Mn, TCA soluble Cu, CP, SOD, GSHPx, Hb, Hc, rbc, wbc			
Haematology (EDTA sample required)	Hb, Hc, rbc, wbc, differential white cells			
Energy (serum sample required)	NEFA, BHB, Urea			
Liver (serum sample required)	GGT, AST, GLDH, Bilirubin			
Individual analytes	Test options	Cost per analyte per animal		
for each animal (serum required except ¹ for glucose please provide Fluoride tube = grey vacutainer)	NEFA, GLDH, CK, Bilirubin			
	Total protein, Albumin, Urea, AST, GGT, Ca, Mg, P, Na, K, Cl, CO ₂ , glucose ¹ , Creatinine, BHB			

If you require a test that we have not mentioned please contact us, as we maybe able to do the analysis.
 Any comments or queries please do not hesitate to contact us.

02/09

Nottingham Univerisity VETerinary Nutritional Analysis

Blood collection tubes, sample storage and dispatch

For trace element analysis we require a lithium heparin (LH) tube and a serum tube, you may need more than 1 LH tube if sample volume is less than 7 ml, whereas for the trace element base profile alone <1ml of serum is required.

For full hematology please supply an EDTA tube (approx 2ml of Blood required), please gently invert 10 times to ensure mixing. We can not guarantee differential analysis as samples are over 8 hours old.

Please do not separate the plasma from the cells in EDTA or LH tubes as many processes are carried out on the whole blood prior to separation.

For Metabolites (e.g. energy and liver packages), serum is preferred, ideally serum should be separated from the cell clot prior to dispatch, this removes the risk of additional haemolysis occurring during the journey to the laboratory. If at all possible please keep samples refrigerated. NOTE: glucose analysis requires a fluoride oxalate tube (eg Grey top v/c).

Samples should reach the laboratory within 72 hours of sample collection, ideally within 24 hours.

Please make sure your packages conform to current regulations for animal samples (UN 3373, P650) and are labeled as 'diagnostic specimens' or 'clinical specimens'.

Data generated within this laboratory may be used for research purposes. The use of this service implies that you are happy for anonymised data to be used

Frequently Asked Questions

What type and how many tubes do I need?

You may use any type of tube, but for the trace element samples we require at least 7ml of Lithium Heparin Whole blood (you will need more than one tube if a 5ml tube is being used) and at least 3 ml (blood volume) of blood in ideally a plain serum tube. If only doing metabolites and not the trace element profile then only serum is required.

Which input form do I use?

Please submit the samples using the submission proforma supplied by us, if you do not have one or have lost it then please e-mail NUVetNA@Nottingham.ac.uk and we will send you one by reply.

How many cows do I test?

10% of the herd or at least 6 to give a representation of the herd. DO NOT sample ill animals as this does not give a true picture of the herd's nutrition. If including different groups of animals then 2-4 from each grouping.

What stage of lactation shall I take blood from?

The stage of lactation is not crucial for the analysis, but is important for you to know for interpretation.

How long do the results take to come back?

The analysis is done on a batch system, carried out every fortnight. The time it takes depends on where the samples catch the batch. The worse case scenario is where the end of a batch is missed and then results may take up to 16 days. You may be lucky and receive them within 3 days if your samples arrive just at the start of a batch of analysis.

Does it matter if they have had a copper treatment?

No, having a copper treatment will not effect the analysis, but may effect your interpretation.

What do you need on the in-put sheets?

E-mail address is crucial as this is where the results are sent once the analysis is complete. Vet Name and Address are required for billing and admin, and the farm id is crucial for sample identification. Sampling and posted dates are required so that it can be assessed if samples have deteriorated due to an excessive prepost storage time, post time or a combination of both. Please clearly state what analysis you require and the species. Individual animal ids are useful for follow up. Additional information will be very useful for your interpretation of the samples but is not required by the lab.

What does the trace element test tell me?

The trace element profile will tell you many things, the selenium status is assessed using both plasma selenium concentrations and the selenium dependant enzyme glutathione peroxidase activity. The copper status uses a combination of parameters to assess the levels of plasma copper and the likelihood that there is a thiomolybdate challenge to the animal (further details within the interpretation section).

Will I get a written report?

No, the service is run on a non interpretative basis, therefore there is no report written and results are sent as an excel attachment by e-mail.

