

Paws claws and udder things

VOLUME 1, ISSUE 9
AUGUST 2010



Welcome to issue 9 of *Paws Claws and Udder Things*. This month we open with an article by Fraser Hill highlighting the diagnostic importance of both the neospora ELISA test and the neospora IFAT test. When it comes to neosporosis investigations it is most definitely a case of 'one size does not fit all'. This issue also includes seasonal reminders about our range of equine tests for the start of the foaling season, and for the use of GGT testing as a predictor of colostrum intake in dairy calves. For our companion animal clients, Catherine Williamson discusses canine beta cell tumours and we feature a reminder about the Allercept® serum IgG Allergen Panels available for dogs, cats and horses.

Kevin Darling
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Diagnosis of *Neospora caninum* infection in cattle

Gribbles Veterinary offers two serological assays, the ELISA and IFAT, for the serological diagnosis of neospora infection in cattle. Both have been available for some time, and both still have a critical role in diagnosis. Knowledge of the disease, the herds' current reproductive status and your diagnostic objective are all-important when choosing which test to use. An IFAT result provides a numerical titre indicating the strength of the serological reaction. An ELISA result is only positive or negative, so does not indicate how strong the serological reaction is or how recent infection was.

The IFAT is the most appropriate assay for individual abortion diagnoses, as titres are elevated around the time of abortion and

then quickly decline within a matter of weeks. In the dam, an IFAT titre of $\geq 1/600$ is indicative of an association between the abortion and neospora infection.

The ELISA is most suitable for herd or flock investigations. To demonstrate an association between abortions/ reproductive failure and *Neospora caninum* infection, a blood sample should be taken from 10 empty cows, and a control group of 10 pregnant cows. All should be tested by ELISA for neospora antibodies. To establish if there is a correlation between the neospora results and pregnancy status, calculate the relative risk:

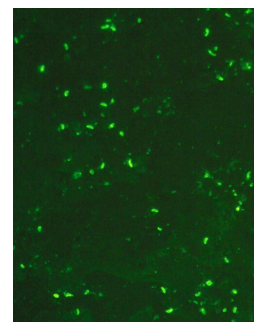
$[a / (a + b)] / [c / (c + d)]$
where *a* is ELISA positive and aborted, *b* is ELISA positive but not aborted, *c*

is ELISA negative and aborted, and *d* is ELISA negative but not aborted. A relative risk greater than 1 indicates an association. Also use the ELISA if you want to determine if cattle have been infected or not.

In foetal fluids, a positive titre is indicative of infection. However, false-negative diagnoses can occur, as we are relying on foetal immunocompetence to develop an antibody response against neospora. If the foetal infection occurred early in gestation, the foetus will not have had the ability to recognise this infection as foreign, hence no antibodies are formed. In one study, the sensitivity of foetal serology went from just on 20% at 3 months gestation, to over 90% at 8 months.

In summary, two equally valuable tests are available to determine the neospora infection status of cattle. An IFAT (\$xx.xx excl. GST) should be used to determine if neospora is the cause of abortion in a recently aborted cow, while the ELISA (\$xx.xx excl. GST) is best used for determining the infection status of groups of cattle.

Fraser Hill



Positive *Neospora caninum* IFAT



Equine tests for the start of the foaling season

As foaling commences, Gribbles Veterinary has a range of tests to assist you and your equine clients:

Serum Amyloid A testing

Measurement of serum Amyloid A (SAA) has been shown to be particularly useful in differentiating between infectious and non-infectious diseases that cause weakness in neonatal foals. Remarkably high levels of SAA have been detected in foals with sepsis or localized infections, while SAA levels in foals with non-infectious causes of weakness have been reported to be in the normal range, or just marginally elevated.

As SAA is more sensitive in detecting inflammation (compared to CBC and fibrinogen), earlier detection and monitoring of inflammatory processes would assist in earlier treatment

and prognostication. Individual SAA testing costs \$xx.xx (excl. GST). When requested in association with a Sick Equine Panel, the SAA test costs just \$xx.xx (excl. GST).

Neonatal IgG testing

The TIA method of measuring serum IgG levels is quantitative, is recognised as the 'gold standard' for immunoglobulin analysis, and is accepted by major insurance companies. With its superior turnaround times, the TIA method enables rapid detection of failure of passive transfer, thus facilitating earlier therapy and a better prognosis. Between now and 31 November 2010, testing costs just \$xx.xx (excl. GST).

Neonatal Isoerythrolysis

Colostrum is important to foals but those at risk of neonatal isoerythrolysis need to be prevented from

suckling for the first 24 - 36 hours of life, or tested before being allowed to suckle to reduce the possibility of them developing this condition.

The following samples are required (post foaling and pre-suckling):

Mare - EDTA and Serum
Colostrum

Foal - EDTA

Please indicate clearly on the submission form if the foal has suckled or not. Testing costs \$xx.xx (excl. GST).

Due to the urgency with which these test needs to be completed, please contact your local laboratory in advance when submitting samples. This will ensure that turnaround times are kept to an absolute minimum and that your samples are prioritised.

"The TIA method of measuring serum IgG levels is quantitative, is recognised as the 'gold standard' for immunoglobulin analysis, and is accepted by major insurance companies"



GGT in calves as a predictor of colostrum intake

Gamma glutamyl transpeptidase (GGT) is produced in large amounts by the mammary gland and is particularly high in colostrum. It is a low molecular weight molecule and is absorbed in the same time frame after birth as gamma globulins. It

is, therefore, an indirect method for indicating colostrum absorption. Young calves may have very high serum concentrations but the half life of the enzyme is very short and it rapidly decreases. As a result, GGT is most accurate as a predic-

tor of colostrum absorption in very young calves in the first 10-14 days.

The table left shows indicative GGT concentrations in dairy calves receiving adequate colostrum at birth. Given the very rapid decrease in GGT over the first few days after birth, it is difficult to establish an effective reference range; rather, it is more accurate to extrapolate from a graph showing data from healthy calves born, suckled naturally, and surviving under New Zealand farming conditions (attached).

CALF AGE	GGT CONCENTRATION
1 day	>600 U/L
3 days	>400 U/L
5-10 days	>130 U/L
10-15 days	>65 U/L
>15 days	Not recommended

Janice Thompson

Hypoglycaemia and beta cell tumours in dogs

Beta cell tumours of the pancreatic islets of Langerhans (insulin secreting tumours), occur more commonly in middle-aged or older dogs, and are more prevalent in larger breeds, although this does not preclude smaller breeds. The clinical signs are episodic and intermittent, and would include seizures, ataxia, collapse and bizarre behaviour. Owners may report that the symptoms are associated with exercise. The insulin:glucose ratio has been used to evaluate the interrelationship between blood glucose and insulin concentration (and more recently the amended insulin:glucose ratio); however, the original formula was devised for humans, where the serum insulin is undetectable when blood glucose is less than 1.68 mmol/L, and the ratio may be altered by other factors such as hepatic tumours and sepsis. We would rather interpret the absolute serum insulin concentration during hypoglycaemia. It is recommended you fast the dog to produce hypoglycaemia, and measure the blood glucose until it is less than 2.8 mmol/L. Point of Care Testing devices are often used to measure glucose levels, but values from these devices are often erroneously low and so it is recommended you submit both a sample for glucose determination (grey top tube) as well as a sample for insulin determination (red top tube).

Catherine Williamson

Serum insulin concentration	Probability of a beta cell tumour
>20uU/ml	High
10-20uU/ml	Suspicious
5-10uU/ml	Low
<5uU/ml	Ruled out

Interpretation of serum insulin concentrations when the blood glucose is <2.8 mmol/L (Feldman and Nelson, 2004)

Allercept® Allergen Panels - reminder

The Allercept serum IgE test is used following a diagnosis confirming atopic dermatitis in cats, dogs and horses. Accurate identification of the causative allergens is crucial for effective allergen-specific immunotherapy. Allercept Canine, Feline and Equine Allergen Panels use a unique, proprietary technology to detect **only** allergen-specific IgE, resulting in more accurate test results. Testing requires a minimum of 1mL of serum (>3mL blood) in a red top tube and costs \$xx.xx (excl. GST).

Immunotherapy treatment in New Zealand is offered by registered specialist Allan Bell and Duncan Graham who has a special interest in veterinary dermatology.

Contact us

Contacting Gribbles Veterinary couldn't be simpler with our easy to remember e-mail addresses:

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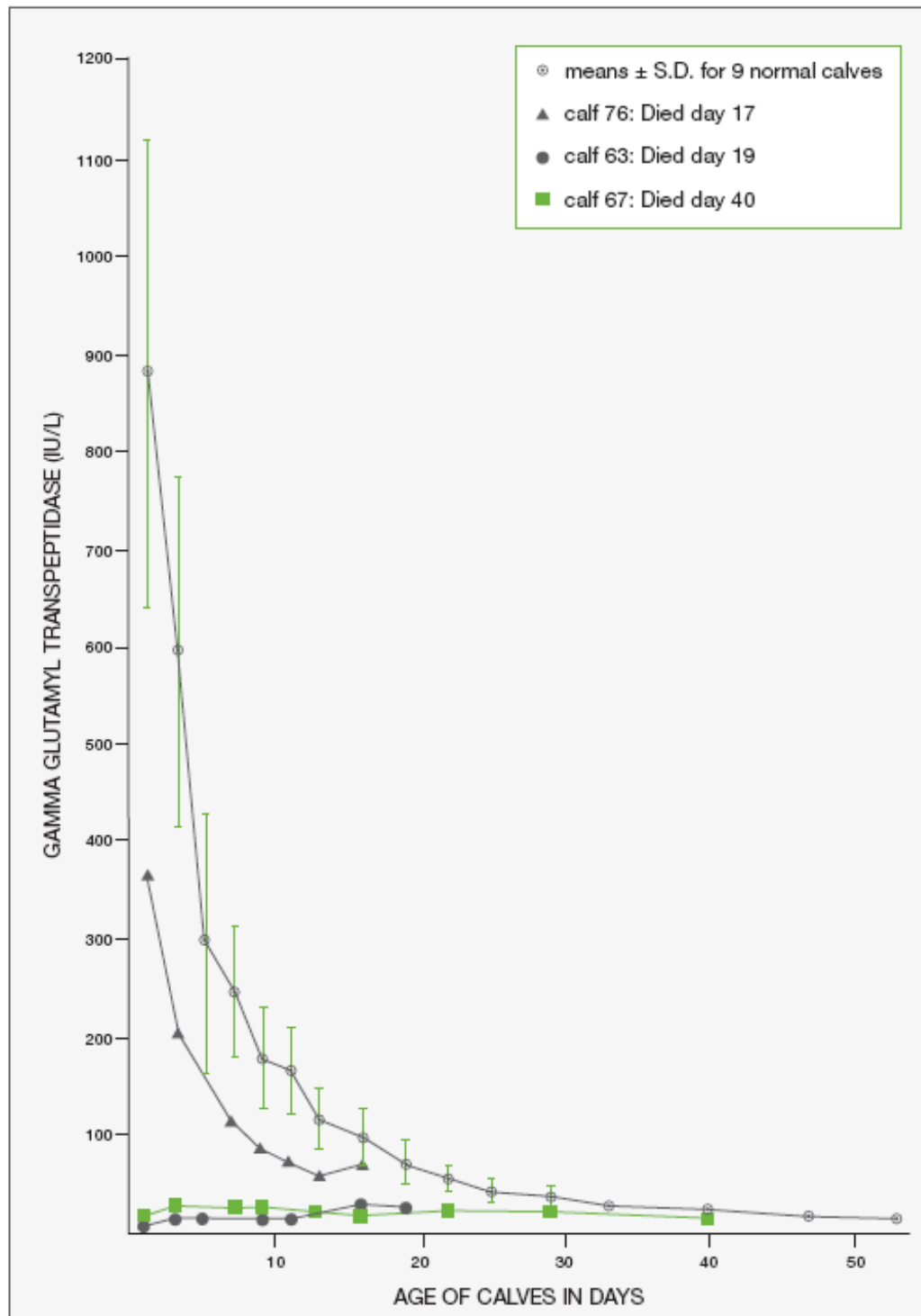
Alternatively, you can contact any one of our five laboratories using our Free Phone number: 0800 474 225.

You are also more than welcome to use our online enquiry service, available through the Gribbles Veterinary website: www.gribblesvets.co.nz

Staff news

- Following the recent appointment of Kaye Rollinson to the position of Group General Manager, Gribbles Veterinary, based in Melbourne, Kevin Darling has taken on the role of General Manager, Gribbles Veterinary New Zealand with immediate effect. Kevin joined Gribbles Veterinary approximately three and a half years ago, initially as laboratory manager Palmerston North and then subsequently taking on the role of National Marketing Manager in addition to his laboratory management duties. Kevin will continue to be responsible for the company's marketing activity in his new role and will work closely with Kaye Rollinson in order to ensure that the business maintains its position as New Zealand's leading provider of veterinary pathology services.

GGT in calves as a predictor of colostrum intake - data from healthy calves born, suckled naturally, and surviving under New Zealand farming conditions



The rate of fall of GGT (U/L) in 9 normal calves with high initial levels and 3 calves with low initial levels.

Reference

Thompson JC, Pauli JV. Colostral transfer of gamma glutamyl transpeptidase in calves. *New Zealand Veterinary Journal* 29: 223-226 (1981)