

Vetlife update on PPH: two of our vets comment on this condition

Postparturient haemoglobinuria

This disease is not thought to be very common but reports would suggest it has occurred more frequently this year with reported cases from dairy farms in Mid-Canterbury and a positive diagnosis on a North Otago property.

In New Zealand, two distinct forms of postparturient haemoglobinuria (PPH) are recognised: North American PPH and Northland PPH. North American PPH tends to affect high producing cows that have had several calvings and have low serum inorganic phosphorus levels while Northland PPH tends to occur in young cows (two years of age) which tend to have a low selenium and/or copper status. The cases seen this spring appear to be more representative of North American PPH.

Cows can present acutely with vague signs of going off milk, breathing rapidly, elevated heart rate, with very pale mucus membranes. Temperature may be elevated and blood collection may reveal dark blackish looking blood or anoxia. This acute form of the disease

(three to five days) may terminate in death or be followed by a long and prolonged convalescence of two to eight weeks. Blood test reveals anaemia and very low phosphate levels. Urine is often very red as haemoglobin is present from the destruction of red blood cells, hence the term haemoglobinuria.

Phosphorus is essential for healthy red blood cells and if concentrations fall below a critical point, red blood cells become damaged and the body removes them from circulation. Ketosis may aggravate low phosphorus due to metabolic acidosis, whereby phosphorus is excreted by the kidneys to compensate for the formulation of ketone bodies. These factors make cows more susceptible to PPH in the spring.

A number of feed types are thought to increase the risk factors for PPH: brassicas, kale and rape along with green oats, perennial ryegrass and subterranean clover. These feeds tend to have either a low phosphorus content or a high

calcium to phosphorus ratio. It is highly probable that seasonal factors that we are unaware of are also part of the picture which is why the syndrome may appear worse on some farms this year.

It is worth noting that cows with low serum phosphorus are not uncommon in the spring and is commonly associated with downer cow syndromes. Low serum phosphorus without clinical disease is no cause for major concern but cows with low serum phosphorus levels in the face of cows with haemoglobinuria and anaemia is cause for concern.

Treatment for critical cases is by intravenous infusions of phosphorus compounds (Catosal, Prophos) or herds may be supplemented with dicalcium phosphate at 100g/cow/day for two weeks. This may be reduced to 30g/cow/day if clinical signs are abating. As it tends to affect cows at peak lactation, supplementation past Christmas is probably not necessary though the clinical picture being seen needs to be considered.

Please contact us if you have any cause for concern regarding this condition or suspect you may be losing cows from this disease.

Ivan Holloway
Vetlife Oamaru



Vetlife services with a smile: news snippets

- Vetlife has disbudded around 15,000 calves this spring - have we done yours? No pain, no stress, no blood.
- We can semen test 4-6 bulls per hour - which are your dud bulls?
- Calf weighing is underway - we now have 3 sets of weigh scales all with EID readers. It is straight forward to weigh 100 calves an hour and to provide a growth report. The growth reports we provide are absolutely pivotal in helping farmers manage their calves; *have a free test try for one month* - It will be hard to say NO!
- Worried about conception rates? If non-return rates are too high or too low - contact us, we can ultrasound scan a sample and give you piece of mind around 30 days post mating.
- Repeat breeders - we have hormonal programmes that can assist the conception rate in these cows, a single injection with a lot of science behind it - ask us.

Adrian Campbell
Veterinarian

Red water in dairy cows and PPH



Some facts:

This is an old condition but is only seen sporadically. I have seen it in the United Kingdom 15 years ago and occasionally in New Zealand. The condition is not well understood: there are at least two variants commonly seen and a number of potential risk factors have been identified but as yet there is no known single, common cause.

Recently, there have been several herds affected with red water in parts of Canterbury and Otago. On some farms individual animals only are affected. More rarely, herd outbreaks are seen and there have been a number of these this season. The death rate can approach 30–50% and treatment is not always effective in severe cases.

What do you see?

The condition has two main variants and in the middle of an outbreak it is not always clear which one you are dealing with. Often the two seem to overlap but the following generalisations can be made:

- Herd outbreaks: Often animals 3–5 weeks after calving; up to 30–50% of the herd can be affected and it is usually the younger animals in the herd (2–4 years approximately). Deaths are usually rare but production will be significantly reduced.
- Individual cases: 3–5 weeks after calving, older animals (3–5 years plus) often those that are or were in good body condition and milking well. Mortality can be very high (up to 50% plus).

Known risk factors:

The following risk factors have been associated with PPH. However, this does not mean that you will always get PPH if some of these factors are present in your farm system. Quite how they interact to cause the disease is unknown as is whether there are other as yet unidentified risk factors.

Risk factors include:

- Feeding brassicas and beets over the winter.
- Low copper levels (especially in the form of the disease normally seen in New Zealand) and especially when the low copper levels are due to high molybdenum levels tying up copper absorption.

- Low blood phosphorous levels (especially in the forms of the disease seen in the UK and USA and in some of the recent herd outbreaks in Canterbury).
- Ketosis and energy deficiency in early lactation.
- Low selenium levels.

What do you see?

Cows off their milk, declining herd production (if herd outbreak), cows off feed, slow and lethargic. Pallor and red water may be noticed associated with shortness of breath and weakness with recumbency and signs mimicking milk fever. Clinical signs progress rapidly over a few days with a marked drop in milk yield. Dung may be stiff and scant or there can be a profuse scour.

What do you do?

Call your Vetlife vet to discuss what is going on! There are a number of other conditions that can cause red water that need to be ruled out.

If PPH is confirmed (lab test and PM can help) then the following steps can be considered.

Look at phosphorous supplementation: If herd phosphorous levels are low this can be useful. A blood test of in contact herd mates can help establish if this is the case. Bear in mind however that some outbreaks of PPH this season have been in herds with apparently normal herd blood phosphorous levels. This may be because low phosphorous is not always present or it may be that a sub sample blood test of the herd is insufficiently sensitive to detect marginal phosphorous levels.

How to supplement phosphorous: Dairy cows need approximately 0.3–0.4% of their dry matter intake as elemental phosphorous. So for a cow eating 18kgDM/day this equates to about 72g of phosphorous. Dairy pasture can be a good source of phosphorous but levels vary through the year and in New Zealand levels typically fall below optimum in the spring and early summer.

Oral phosphorous can best be given as dicalcium phosphate (DCP). Note this is NOT the same as dicalcic phosphate, calcimate, calcium carbonate or lime flour. DCP contains 18.6% phosphorous and 25% calcium. Inclusion rates will depend on your farm system, feed supply and pasture phosphorous levels. If your pasture is at 0.3% phosphorous and the cow's requirement is around 0.4% of DM eaten/day as phosphorous then you will need 100g/cow/day to provide the short fall. It is expensive (around \$1000/ton + GST) and I have used lower inclusion rates than this in the past depending on herd and pasture phosphorous levels.

How long do you need to feed it for? Clinical cases in New Zealand seem to occur 3–5 weeks after calving and pasture phosphorous levels typically remain below optimum from August to mid-January. Usually supplementation needs to be planned for the period of AB and through to the end of bull mating. Blood and pasture tests can help determine if this can be shortened.

Affected cows can take much longer than this to recover and can develop secondary problems. However, extended phosphorous supplementation beyond these limits for these cases seems to make no difference to their long term recovery.

Look at copper supplementation: If low copper levels have been identified as a factor in the occurrence of PPH on your farm, then look at adding extra copper to the diet either as sulphate or chelate. Be careful however, excess copper can lead to massive copper release from the liver and a syndrome very similar to PPH.

Treatment

Intravenous phosphorous salts need to be given sometimes backed up with individual oral phosphorous supplementation. Blood transfusions can be given for individual valuable animals.

Andrew Bates
Vetlife Temuka

Typical monthly pasture phosphorous content in NZ

