

1. Within the liver NEFAs would normally enter structures called mitochondria and would be partially oxidised into ketones which can be utilised by muscle to form energy. This process would normally occur in the absence of glucose and hence low levels of insulin. In this case blood results will show high levels of NEFAs and also high levels of ketones. If ketone levels become too high then the cow will develop ketosis (type 1)
2. When energy levels are good and there is a higher level of insulin in the blood stream then the NEFAs do not enter the mitochondria and hence are converted to triglycerides (TGs) and are either transported out of the liver in the form of VLDLs or lie in the liver to form fat deposits resulting in Fatty Liver Syndrome. Therefore in the second scenario a blood sample would show high levels of NEFAs but low levels of ketones. (type 2 ketosis and usually occurs earlier in lactation than type 1). Type 2 ketosis is usually due to insulin resistance.

Predisposing Management Factors causing Fatty Liver

1. Overfat cows late in lactation and in the dry period.
2. Over-feeding with Maize silage and other high energy components in late lactation and all the way through the dry period.
3. Failure to control milk fever. Calcium will potentiate the action of insulin and it has been accepted that low blood calcium is associated with insulin resistance.
4. Poor feeding practices in the late dry period and around the time of calving;
 - Overcrowding
 - Dirty troughs
 - Heating silages

Treatment of Fatty Liver

This can often be unrewarding due to the loss of function of the Liver and can be a costly syndrome (as it has been described as a “gateway disease” due to its association with other problems seen at the time of calving)

Fatty Liver and associated problems	Association
Displaced abomasum	+++
Impaired immune-activity	++
Ketosis	+++
Mastitis	++
Metritis	++
Milk Fever, Retained foetal membranes	+

Animals with suspected Fatty Liver should be examined by a vet as it is important not only to confirm the diagnosis but to also start with a course of corticosteroids.

There is a new drench on the market called **AGGERS PRO-LIVER** which contains numerous components in it which will help the liver to try and recover from the fat deposition or it can also be used in cows which may be susceptible to fatty liver prior to calving;

Recommended protocol

Stage 1: for cows at risk

Administer 1 bottle of **Aggers Pro-Liver** every 12 hours for 4 days, given from 2 days pre calving to 2 days post calving. If handling is an issue then 1 bottle every 12 hours for 2 days post calving will significantly benefit the cow.

Stage 2: For cows with Fatty Liver

Administer 1 bottle of **Aggers Pro Liver** every 12 hours in conjunction with half a bottle of **Aggers Glycerol Plus** for a 3-5 day period. This should be used in conjunction with other medicines given by the Veterinary Surgeon.

If you have any queries then please phone the surgery and speak to one of the farm team.

Ian Patton

Did you know that Fatty Liver or Fat Cow Syndrome can lead to increased culling at the start of lactation?

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