Milk Fat Depression

What causes Milk Fat Depression?

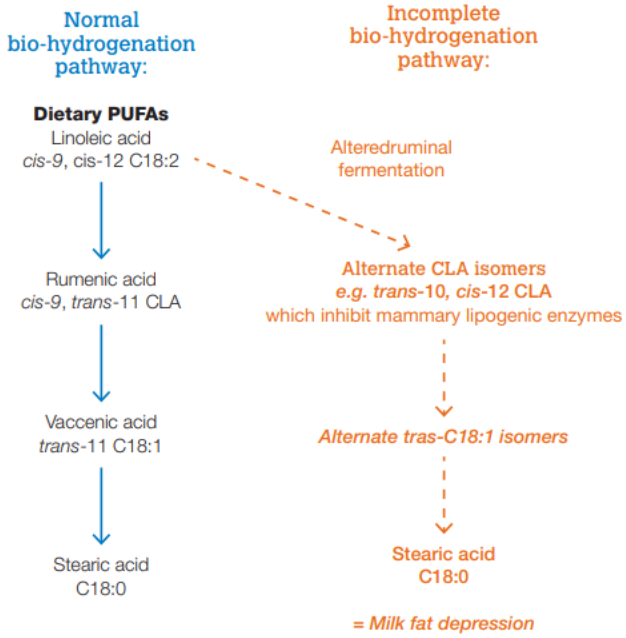
Milk Fat Depression (MFD) - is metabolic disorder characterised by a continuous reduction in milk fat. Most commonly seen in spring when a flush of grass growth is available. Although it is most commonly noticed in spring it can be prevalent or prevail when any sudden changes to the diet occur. Traditionally Milk Fat Depression was focused around a lack of fibre within the diet; due to less acetate produced within the rumen resulting in less milk fat (acetate being a precursor of milk fat).

New way of thinking

New Research shows that low MFD wasn't driven by to a lack of acetate from fibre digestion as much as we thought but has more to do with the fats within the diet and how the rumen is able to process them. Normally fats within the diet are Poly Unsaturated Fatty Acids (PUFA) otherwise known as Vegetable fats. These are made up of two main fatty acids

1. Linoleic Acid: **grains, oilseeds, maize silage**
2. Alpha linolenic acid : **pasture**

PUFA's are toxic to the rumen bacteria and need to be processed within the rumen converting them from vegetable oils to animals fats through a process called **Bio-hydrogenation.** This process takes time, when large volumes of high quality grass and grain are included into the diet the throughput of the rumen is increased resulting in bio-hydrogenation only being partially complete. Instead of the Vegetable fats being converted to animals fats properly we get an intermediate product called **Conjugated Linoleic Acid (CLA's)** these move out of the rumen into the intestine and are absorbed into the blood. CLA's have an extremely negative impact on the mammary gland where large proportions of milk fat is produced and deposited into the milk. Not all CLA's are bad just some of them especially if they occur within a lowered pH rumen; where they produce a specific CLA called **Trans-10 CLA.** This is the CLA which controls the normal production of milk fat.



Source: Dairy Australia Milk Fat Depression fact sheet Jan 2016adapted from Harvatine KJ, Bauman DE (2007) Recent advances in milk fat depression 1 time course of milk fat depression and 2 Adipose tissue lipogenesis during milk fat depression Cornell University

What can we do to minimise the risk of MFD?

1. **Keep effective fibre** – at least the length of muzzle width
    a) Assisting with the throughput of the rumen to ensure bio-hydrogenation is fully completed
    b) Ensure cows are fully fed and appropriate DMI (Dry Matter Intake) levels are achieved
    c) Salivation– cud chewing is important to help make bicarb through saliva to assist with buffering the rumen
2. **Use a buffer** within the diet
    a) Assisting with keeping a healthy pH level (6.2-7) within the rumen to reduce the risk of creating Trans-10 CLA's
    b) The use of a yeast within the diet can complement the buffer within the diet providing a stable environment for the rumen microbes. Encourage DMI and better utilise the feed sources available. Speak with your nutritionist to see if yeast is a good fit for your herd.
3. **Be aware of how we offer feed**
    a) Avoid large volumes of rapidly degradable carbohydrates such as grain and grass without complimenting with an effective fibre source.
    b) Avoid slug feeding (large volumes of grain in a brief period/ in a short period) as much as possible
    c) Ideal feeding plan
        i) Well buffered balanced grain ration within the dairy
        ii) Fibre provided behind the dairy or on a feed pad prior to grass
        iii) Grass consumption at 3 leaf stage or canopy closure
        iv) Repeat
4. **For further information** on how pasture management can minimise the risk of milk fat depression within your herd take a look at our **Rye Grass Management** information sheet

Speak to one of our nutritionists to see how we can help you to minimise the risk of Milk Fat depression or assist with any of your herds needs

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