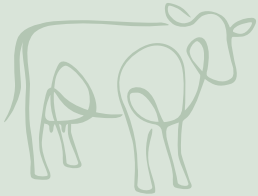


Best practice farms optimise the health and welfare of their cows through veterinary consultation, planning and documenting their prophylactic and responsive metabolic health and medical management protocols.



## Why is this important?

This is important because healthy animals are more likely to perform well in both their reproductive performance and milk yield. Ensuring that prevention of metabolic disease is a priority and that farm personnel are training in the appropriate remedial strategies will reduce both the risk and severity of metabolic disease for the herd.

### Nutrition



#### Good practice

- ✓ Changes to diet composition should be introduced gradually to allow the cows and their digestive tracts (rumen and microflora), to adjust. This should include when they are released out onto pasture.

See the  **Cow Nutrition factsheet** for more information



#### Best practice

See the  **Cow Nutrition factsheet** for more information

### Environment



#### Good practice



#### Best practice

See the  **Cow Environment factsheet** for more information

 Good practice

- ✓ During the 'transition period' (weeks before and after calving) cows should be monitored closely as they are at higher risk of illness due to hormonal fluctuation, immune suppression and the stress associated with calving.
- ✓ The main nutritional and metabolic disorders of dairy cows are sub-acute ruminal acidosis (SARA), sub-clinical ketosis (SCK) (acetonemia), milk fever, displaced abomasum (also called abomasal displacement), grass tetany (less frequent) and plant poisoning (rare).
- ✓ Monitor regularly the key signs of metabolic disease such as irregular appetite, weight loss, drop in milk production or modification of milk constituents. The indicators and signs can be common to several disorders. See **Table 1** which summarises the signs and actions required for a number of metabolic conditions.
- ✓ Preventive strategies based on key risks arising from feeding and management practices (e.g. choice of feed, use of supplements, quantities fed, body condition score targets) should be in place to minimise the occurrence of metabolic disease.
- ✓ Remedial actions regarding metabolic or nutritional disease must be taken in agreement with veterinary or nutritionist advice.

Issues	Indicators/signs	Risk factors/Causes	Corrective actions	Preventive actions
<b>Sub-acute ruminal acidosis</b>	Irregular appetite; decreased time spent eating or ruminating; splashing, soft, clear dung with undigested material; decreased milk fat content; reduced rumen motility. Signs are often delayed from the triggering event.	Too high proportion of concentrates (e.g. fermentable grains) or too rapid transition from high forage to high concentrate feed, leading to a reduction rumen pH or too fine feed structure. High producing dairy cows are more prone to acidosis.	Analyse and refine with a competent technician the quantitative and qualitative composition of the diet (e.g. roughage/concentrates ratio, fermentability of the diet), the feed distribution methods, the management of feed transitions. Prevention is much more favourable to treatment.	Ensure smooth transitions between diets, especially from the dry and the lactation period: increase the concentrate/roughage ratio progressively over 3 weeks. Give access to a homogeneous ration (concentrate and roughage) all day long. Provide a fibrous roughage at the beginning of the meal, favour slow-degrading starch in concentrates.
<b>Subclinical ketosis (acetonemia)</b>	Weight loss, decreased intake and milk production, constipation, possible nervous disorders, high milk fat percentage and low protein rate, low body condition, high beta-hydroxybutyrate (BOH) in blood, acetone smell from milk or breath.	Often occurs at the beginning of lactation (until 6 weeks postpartum) when the cow is not able to meet her energy needs and mobilises her lipid reserves.	Rapidly provide a glucose precursor, e.g. propylene glycol. Injection of corticosteroids and glucose IV may be needed and administered by a vet. In case of any doubt, call the vet. Analyse and refine with a competent technician the dry-off and the early lactation diets.	Aim to achieve a 3.5 body condition score (on a 1-5 scale) at dry-off. During the 3-last week of dry-off, prepare the rumen to receive the lactation diet. Ensure good feed transitions and a sufficient energy intake (roughage and concentrates) before the lactation peak.
<b>Milk fever</b>	Paresis, cow being recumbent, no rumination or ingestion, reduced urination and defecation, muscular weakness, subnormal temperature, increased heart rate, depression, loss of consciousness.	Occurring soon after calving for cows with 3 or more lactations. Caused by low levels of blood calcium.	Call the vet.	During the 3 weeks before calving, limit the calcium intake, provide enough magnesium intake and ensure correct chloride and sulphur intake (a negative cation-anion balance in the diet is recommended). After calving, provide approximately 200 g of calcium per day. A positive dietary cation-anion balance is recommended.
<b>Displaced abomasum</b>	Dullness; marked reduction in feed intake especially that of concentrates; drastic reduction in milk yield; scanty faeces, either solid or diarrhoeal, acetonemia.	Heavy concentrate and low roughage feeding programs; sudden changes in levels of grains in diet. Displaced abomasum is often a consequence of a subacute ruminal acidosis.	Call the vet to have the abomasum returned to its normal position.	Ensure a sufficient intake of effective fibres, not too much concentrate intake and enough calcium intake before dry-off.
<b>Grass tetany (hypomagnesemia)</b>	Nervous symptoms: convulsion, muscular contraction, pedalling of the limbs, etc.	Magnesium deficiency favoured by the ingestion of young grass shoots that have a low magnesium content.	Call the vet.	Provide magnesium before and after the first days at pasture. Ensure a smooth transition between the winter diet and pasture.
<b>Plant poisoning</b>	Depend on plants.	Ingestion of poisonous plants often combined with nutritional deficiency.	Call the vet.	Ensure cattle have no nutritional deficiency. Monitor the ingestion of available poisonous plants such as saffron oenanthe in ditches; foxglove, yew, boxwood, privet, chestnut, oak and acorns in hedges; mercurial plants and dock in plots. Avoid overgrazing.

**Table 1.** Main nutritional and metabolic health issues for dairy cows and the associated indicators/signs, risks factors/causes, corrective and preventive actions.



## Best practice

- ★ **Best practice** farms document the number of cases of each metabolic or nutritional disorder and use this information for developing a health plan to prevent metabolic disease.
- ★ **Best practice** farms measure beta-hydroxybutyrate (in blood) or ketones (in milk or urine) from individual cows in early lactation to detect subclinical ketosis.

See the  factsheets on **Cow Metabolic and Nutritional disease, Cow Reproductive, Cow Infectious Disease, Cow Locomotion and Cow Udder Management** for more information



## Good practice



## Best practice

See the  **Cow Behaviour and Human-Animal interactions** factsheet for more information



## Summary

Time invested in minimising risks of preventable illness or injury and careful planning for management of unavoidable illness or injury, will help protect health and maximise the productivity and overall performance of the cow herd.



### Farm

Nutritional requirements vary with the physiological stage of the cow. Preventing dietary imbalance and/or abrupt changes promotes health and wellbeing for dairy cows.



### Cows

Nutritional requirements vary with the physiological stage of the cow. Nutritional and metabolic disorders are essentially caused dietary imbalance and/or abrupt changes which do not allow adequate time for the cow and her metabolism to adjust.



### Handler

Providing appropriate training and working with veterinarians and other experts to promote prevention and early detection of nutritional and metabolic disorders will help ensure farm personnel remain happy in their role.

## Take pride in all of your farm's good and best practices towards animal welfare!

### Additional resources



Care4Dairy.eu