

Irish Grass Mineral Analysis Report – late April 2020

Spring-grazing livestock

Grass samples were collected across the country in the last week of April.

During this period, we saw good grass growth combined with warm sunshine and limited rain across the region. These weather conditions were a stark contrast to those being experienced when the first samples were collected in February.

According to GrassCheck, in the week beginning April 20th soil moisture was ideal, not saturated. In some areas, including Derry/Londonderry, there was potential for restricted growth due to dry conditions.

As a result of this dry spell, more livestock have been turned out to utilise the grass as their main feed source. It is very important to know exactly what minerals animals are getting from that grass and whether supplementation is needed.

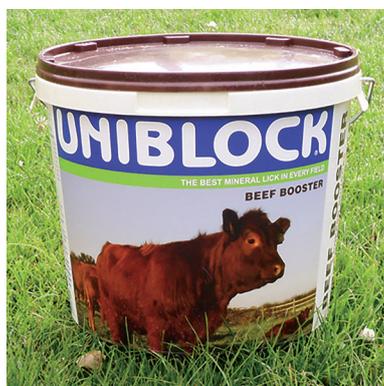
Mineral deficiencies can result in poor performance and lead to clinical diseases whilst sub-clinical deficiencies can cause less obvious signs of clinical deficiency to develop; these include retained placenta, reduced fertility, ill thrift or hoof issues, all of which result in poorer performance and profitability within a herd or flock.

Grass mineral status changes from month to month, regardless of how pasture appears to be growing. The nutritional requirements of animals also change throughout the year, depending on age and stage of growth or whether they are pregnant or lactating. To achieve optimum results it is therefore vital to manage both correctly.

Sulphur plays a key role in grass growth as it is involved in protein, enzyme and amino acid formation. Most fertilisers contain sulphur as it is closely related to nitrogen.

If there is not sufficient sulphur available, grass growth is compromised; if there is too much it can have an antagonistic effect on the availability of copper to the grazing animal.

Our grass sampling results indicate sulphur levels to be high. This was not a surprise as most of the farms we sampled had spread fertiliser on the land prior to sampling in April, increasing sulphur levels.



We often see grazing youngstock and cattle with rusty-coloured coats which can sometimes indicate a lack of copper in their diet, especially if they are totally reliant on grass as their main food source. We therefore also measured copper levels in grass. On average, these were in the mean range but 50% did have low copper levels. Our results showed high levels of molybdenum

in addition to high sulphur and iron levels. This combination is the worst one for allowing antagonists to reduce the amount of copper available to the animal. If copper levels are low but molybdenum high, the fertility of the animal is at risk as the situation negatively impacts on the production of oestrogen. Uniblock has produced 'Beef Booster',

a product containing four sources of copper and one which is vital for cattle grazing on reclaimed or high molybdenum soils.

Uniblock's 'Vitulix' was designed to provide calves aged from three months with a complete feed to supply all their required protected minerals and vitamins whilst at grass. Vitulix is made from dehydrated molasses, allowing intakes to be concentrated and controlled. This is an ideal way of protecting grazing youngstock against pasture deficiencies; as we can see from our results, various trace elements are in short supply in pasture at various times of the year. In certain samples it is clear that iodine, cobalt and selenium are lacking. Vitulix contains the full package of trace elements - protected zinc, cobalt, selenium, and manganese - and also vitamins which grass tends to lack. It also includes three protected sources of copper - in protected form, the copper is more bioavailable to the animal. To encourage intakes it is recommended that buckets are placed in well-trafficked areas, such as close to a water trough. Because intakes are controlled, provide one bucket per 15 calves to allow for the recommended 100-150g/day to be consumed.



It is evident from our analysis that iron and aluminium have greatly reduced since our last sampling.

These metals were previously very high due to heavy rainfall in February causing soil contamination and runoff.

Aluminium is a contaminant and has the potential to cause toxicity in ruminants if levels exceed 1,000mg/kg DM.

Grass does however have a requirement for iron (Fe). Iron has a close relationship with manganese (Mn). Ensuring that the Fe:Mn ratio does not exceed 2.5:1 in the total diet of the ruminant will prevent iron reducing the availability of manganese to the animal. Manganese in ruminants is important for embryo survival and therefore fertility, and for bone development too. In two of our samples the Fe:Mn ratio did exceed this level thus care should be taken to provide supplementary manganese in the ruminant's diet to avoid any deficiencies.

Coccidiosis is another common occurrence in youngstock at grass. Stress created by changes that take place around weaning, such as diet, social group and housing, makes the animal susceptible to coccidiosis.

A large percentage of calves are infected sub-clinically as their immune system is able to fight gut damage caused by coccidia. This immune response comes at a price as it uses energy which could otherwise be used for growth. These calves will have reduced appetite, poorer weight gain, and dull coat compared to a healthy calf.



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Coxxicalf, an anti-coccidia bucket designed for weaned calves at/ before turnout, is another development by Uniblock. Coxxicalf contains seaweed, yeast and the essential oils, poly phenols. These all improve calf rumen digestion and reduce protein degradability - which may reduce the energy required for ammonia excretion and therefore allow more energy for immunity - and have been shown to kill protozoa.

Coxxicalf also provides full mineral supplementation at grass.

The life cycle of coccidiosis is approximately 21 days therefore it is recommended that buckets are placed with animals before any risks of stress occur. Intakes of 50–100g/calf/day can be expected if the bucket is placed in well-trafficked areas. Move the buckets as the calves move from paddock to paddock. In addition to providing Coxxicalf, move calves to clean pasture regularly and avoid poaching around troughs or creep feeders.

The sampling in April showed lower magnesium levels and higher potassium levels compared to the previous samples. This combination can result in grass tetany or 'staggers' in both cattle and sheep. There

is also added danger from high nitrogen application and from spring grass being high in protein as this reduces magnesium absorption in the rumen due to high soluble protein. These factors together play a role in putting the animal at high risk of grass tetany.

We are still experiencing cold nights and this also increases the vulnerability of animals to tetany.

Until conditions change, it is recommended that magnesium buckets are provided for grazing stock for the next few weeks.

It is important to establish potassium levels in grass before selecting which fertiliser to apply.

Uniblock has a range of free access magnesium supplements, without copper and available for cattle only or dual-purpose for cattle and sheep. 'Super 15' and 'Econo-mag' products are designed for both species, whereas 'Herdminder' and 'High Mag' are for cattle only.

Met Eireann historical weather:

www.met.ie/climate/available-data/monthly-data



Table 1: Various weather Station results across ROI & NI for rainfall from Jan to April 2020

Parameter	Dunsany (NE)	Claremorris (West)	Moorepark (South)	Johnstown castle (SE)	N. Ireland
Jan to March (mm)	2.6	(west)	3.1	3.9	3.4
April (mm)	0.5	0.4	0.4	0.4	0.4
Mean (Jan to April (mm))	0.3	0.4	0.4	0.4	0.3

Table 2: Average grass mineral analysis from samples taken across Ireland from July 2019 to April

Parameter	July	October/November	December	February	April
Nitrogen (%)	2.6	3.4	3.1	3.9	3.4
Calcium (%)	0.5	0.4	0.4	0.4	0.4
Phosphorus (%)	0.3	0.4	0.4	0.4	0.3
Potassium (%)	2.6	3.1	2.9	2.5	3.0
Magnesium (%)	0.17	0.17	0.17	0.22	0.18
Sodium (%)	0.18	0.18	0.22	0.34	0.15
Sulphur (%)	0.25	0.27	0.25	0.29	0.3
Copper (mg/kg)	7.4	8.9	7.9	9.7	8.55
Zinc (mg/kg)	27.6	30.2	36.6	39.5	27.6
Manganese (mg/kg)	89.6	87.0	88.6	99.4	88.0
Molybdenum (mg/kg)	1.5	2.7	2.2	3.8	2.3
Cobalt (mg/kg)	0.1	0.3	0.4	0.6	0.2
Selenium (mg/kg)	0.1	0.1	0.1	0.2	0.1
Iodine (mg/kg)	0.4	0.3	0.4	0.4	0.4
Iron (mg/kg)	185.2	399.8	442.7	569.0	206.9
Aluminium (mg/kg)	151.8	440.8	496.2	666.0	179.4

Key	Levels
Green	Low
Orange	Average
Red	High