Irish Grass Mineral Analysis Report – June 2020

Grass samples were collected across the country in mid-June.

During this period, we saw much more rainfall compared to the drought conditions in places during the month of May.

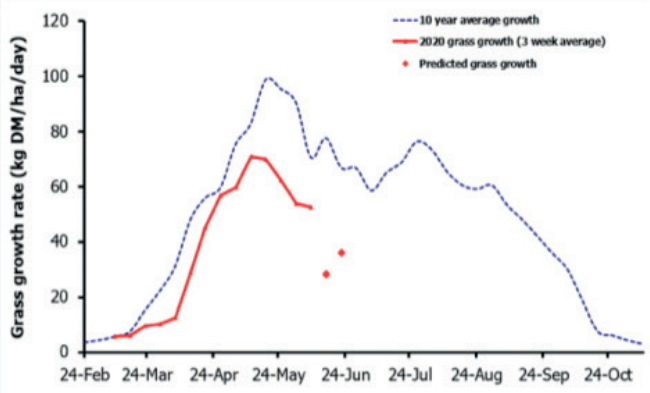
We experienced average temperatures in the region of 12-15 °C

However, according to GrassCheck for the commencing 8th June, grass growth remained below average (see figure 1 below), as the impact of May's drought continued to take its toll on pastures.

This was seen most significantly in the eastern counties, where on-farm growth rates were averaging 42.8 kg DM/ha, just 61% of the typical 70.4 kg for early June.

The 14-day prediction showed that growth rates could start to recover as soil moisture stores were slowly replenished by rain.

Figure 1: 2020 grass growth compared with 10-year average growth in N. Ireland *(GrassCheck, 2020)*



Fly treatment

High levels of humidity in recent weeks has resulted in an increase in populations of flies.

To combat this, Uniblock's garlic contains garlic oil; fed to stock during the summer months, this can reduce fly and tick problems.

Offer to dry stock at grass - cattle, sheep and horses - and it is also ideal for helping to prevent summer mastitis in-calf heifers.

Magnesium

It is evident from our latest results that magnesium in grass remains at low levels, with 70% of samples defined as low or deficient.

It has been well established that a high potassium intake relative to magnesium intake may result in grass tetany, otherwise known as hypomagnesemia.

The potassium-to-magnesium ratio in grass is around 14:1. Recent results shows 7 out of 10 samples contain a 14+:1 ratio therefore there is still a need to supplement stock with magnesium. Uniblock's High Mag is suitable for cattle only whilst Economag is also ideal for cattle and for sheep. Uniblock also produces a 2 in 1 fertility and high magnesium product. Herdminder. This contains phosphorus and should be provided to cattle to help get cows back in calf whilst grazing in the summer when the risk of tetany remains.

Sodium

The samples showed grass sodium levels to be low in mid-June; this can be common after periods of drought. Research has shown that without adequate sodium in the animal's blood, the body will grab onto the most available cation, in this case magnesium, followed by calcium. Magnesium absorption from the rumen is dependent upon sodium. Therefore, salt licks can be a valuable supplement to ruminants grazing pasture low in sodium to help prevent grass tetany from occurring. Access to sodium also appears to help alleviate acute deficiencies during spikes in nitrate.

Pica

We often hear about the condition pica, in which cows are observed eating stones, soil, briars and many other objects.

This indicates that a cow is trying to correct a deficiency.

Low sodium is certainly a factor for this behaviour in cows.

High potassium, which we observed from our samples, also increases the risk by locking up sodium.

Low sodium can be a factor when we see cows licking urine or licking walls.

Pasture in early summer can have lower sodium, as our earlier samples indicate, therefore this must be high on our list of differentials.

Cows tend to self-regulate and will only generally consume it if they need to. Salt licks should therefore be accessible close to water troughs. Uniblock's grazing salt is a good option for dairy cows. Grazing Salt is very palatable due to the inclusion of molasses in the bucket. It is a cost-effective way of feeding salt as there is less waste compared to a standard salt block. It will also help reduce subclinical grass tetany and milk fever on potassium(K)-rich forage and soils. It will also encourage dry matter intakes and is ideal for dairy cows before and after calving.

In situations where salt doesn't make a difference to pica, the deficiency could be due to low levels of phosphorus in the grass. Less than 0.2% phosphorus is considered to be low. The average phosphorus levels across samples for June was 0.28%, with a range of 0.21 – 0.37%. In this instance, it is therefore likely that salt or fibre could be the reason for the incidence of pica. Grass and blood samples can help detect this.

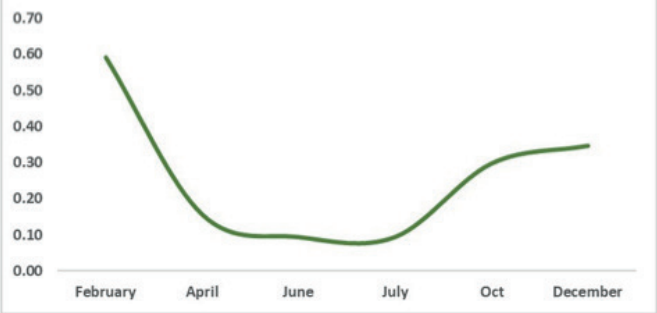
Cobalt

Eighty percent of samples analysed highlighted a very low cobalt supply and with a further 20% of samples just above the low level. Grass does not have a requirement for cobalt, although it is of course an essential element for the production of Vitamin B12 by rumen microbes. In ruminants, cobalt/vitamin B12 is essential for health and growth/development, particularly in growing young stock such as calves and lambs. In general cobalt tends to be available at its highest during the winter months and lowest in the summer months (Figure 2). The dry weather throughout May will have impacted on cobalt levels available in grass in early June. It is important that growing lambs are supplemented with cobalt to enable growth rates to remain high during the grazing period. Uniblock's sheep mineral is an easy way to keep cobalt and other trace elements topped up on a daily basis.

Copper

Copper was shown to be lacking in 60% of the samples, and on average molybdenum and sulphur levels were high therefore copper supplementation for cattle and horses at this time is very important. Copper supplementation with Uniblock's Beef Booster is an option for beef cattle. Vitulix is a good option for weaned calves at grass as it provides them with three protected sources of copper and is a complete feed which supplies all their required protected minerals and vitamins. Mixrite's Copper-5-a-Day bucket is ideal for growing cattle - it contains 45% protected copper as five different sources. Copper deficiency can result in impaired fertility and reduced growth rates.

Figure 2: Average cobalt levels in grass throughout the year *(2019/2020)*



Iodine

Iodine plays a role in protein production and appetite control and to helping animals adapt to temperature changes. Along with selenium it has been found to play an important role in brown fat - adipose tissue - metabolism in new-born lambs, promoting lamb survival. Our average results - 0.4 mg/kg DM - are in line with other UK data which indicates iodine levels are low in grasses sampled. Selenium levels were average overall, however half of the grasses sampled appeared to be high in selenium.

When providing supplementation care must be taken to not over-supplement selenium as it can be toxic to animals.

Manganese

Manganese in ruminants is important for fertility - embryo survival - and bone development.

Our results highlight an average overall increase in manganese levels in grass compared to our previous sample in April.

Of all trace elements, manganese is the most sensitive to soil pH. It is the most soluble and available under acid conditions. Grass itself has a requirement for manganese, which is used mainly in numerous enzyme systems.

It has a close relationship with iron, and care must be taken to ensure the Fe:Mn ratio does not exceed 2.5:1 in the total diet of the ruminant, as iron will easily reduce the availability of manganese to the animal. In all our samples, they were below the 2.5:1 ratio.

Summary

- Magnesium low and potassium high in grass – risk of grass tetany
- Low copper and high sulphur – copper supplementation necessary
- Sodium levels low – can affect grass tetany and pica in cattle
- Cobalt levels low – supplementation important for growing youngstock

Met Eireann historical weather:
www.met.ie/climate/available-data/monthly-data

Figure 3: Average grass mineral analysis from samples taken across Ireland from July 2019 to June 2020

Parameter	July (19)	Oct/Nov (19)	December (19)	February (20)	April (20)	June (20)
Nitrogen (%)	2.58	3.44	3.10	3.91	3.44	3.47
Calcium (%)	0.46	0.41	0.41	0.37	0.43	0.51
Phosphorus (%)	0.28	0.37	0.41	0.38	0.33	0.28
Potassium (%)	2.60	3.10	2.90	2.50	3.00	3.05
Magnesium (%)	0.17	0.17	0.17	0.22	0.18	0.21
Sodium (%)	0.18	0.18	0.22	0.34	0.15	0.21
Sulphur (%)	0.25	0.27	0.25	0.29	0.30	0.30
Copper (mg/kg)	7.38	8.89	7.89	9.70	8.55	7.47
Zinc (mg/kg)	27.63	30.22	36.56	39.50	27.61	30.45
Manganese (mg/kg)	89.62	87.03	88.56	99.40	88.04	111.22
Molybdenum (mg/kg)	1.47	2.73	2.15	3.80	2.26	1.31
Cobalt (mg/kg)	0.09	0.30	0.35	0.59	0.16	0.09
Selenium (mg/kg)	0.13	0.10	0.13	0.16	0.06	0.14
Iodine (mg/kg)	0.40	0.34	0.37	0.42	0.43	0.43
Iron (mg/kg)	185.21	399.78	442.67	569.00	206.99	108.69
Aluminium (mg/kg)	151.80	440.79	496.22	666.00	179.38	83.88

Key	Levels
Green	Low
Orange	Average
Red	High