

# Irish Grass Mineral Analysis Report – July 2019

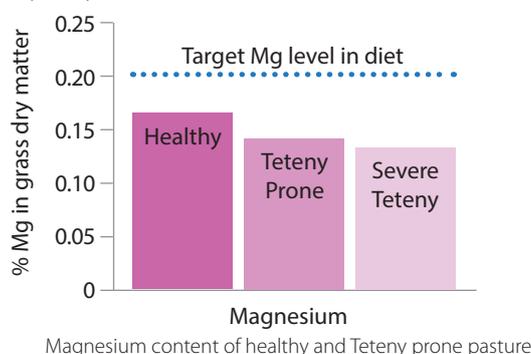
## Cattle – Grass Tetany

### Potassium, magnesium and sodium content of herbage

Magnesium and sodium levels on average across the 10 samples is relatively low. The risk of grass staggers may increase with lower levels of magnesium in the herbage; however, it is not a reliable measure on its own. Sodium levels are also important when considering magnesium disorders in animals. The risk of staggers will increase when sodium levels are also low. Lush spring grass growth is one of the main causes of tetany as magnesium and sodium levels are usually low during this period, therefore it is advisable to avoid potash application to grazed swards during this time.

The mean magnesium and sodium levels across the 10 fields sampled in July was 1732mg/kg and 1752mg/kg respectively. These values are considered low, with 2000mg/kg being the minimum accepted value and 3000mg/kg being the recommended average.

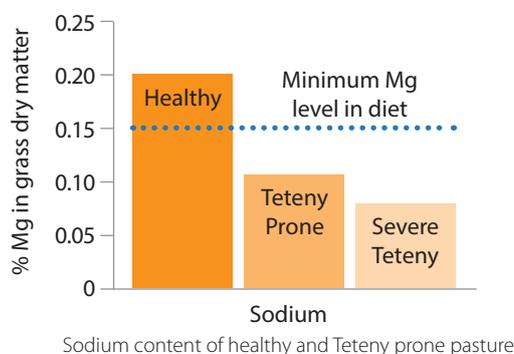
Figure 1: Magnesium content of healthy and tetany prone pasture (PDA, 2005)



Twenty percent (2 out of 10 fields sampled) of our samples were between the tetany prone and severe tetany risk, having mg levels of 0.13 and 0.14%. The remaining 80% of samples mg levels ranged from 0.16% to 0.2%.

It is recommended that these animals are supplemented with high magnesium licks to prevent grass tetany from occurring.

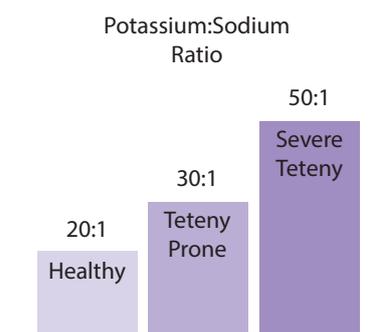
Figure 2: Sodium content of healthy and tetany prone pasture (PDA, 2005)



Twenty percent (2 out of 10 fields sampled – different from fields low in mg) of our samples were between the tetany prone and severe tetany risk, having Na levels of 0.09%.

Potassium levels also play a role in the risk of grass tetany. Risk is reduced if the potassium, magnesium and sodium levels in herbage result in K:Na and K:Mg ratios of between 10 and 20:1. Findings from our survey showed on average that the K:Na and K:Mg ratios were 15.8:1 and 15.9:1 respectively.

Figure 3: Potassium:Sodium Ratio of healthy and tetany prone pasture (PDA, 2005)



Thirty percent of our samples (3 out of 10 fields sampled) showed to be tetany prone having the following ratios 31.2:1, 30.8:1, and 32.8:1.

A large portion of the sodium consumed by cattle is used in the production of saliva which is secreted into the rumen to maintain a constant pH by neutralising acids formed by bacteria in the rumen. If the sodium content of grass is too low, the animal automatically substitutes potassium for sodium as an alternative buffer in the saliva and diverts sodium to maintain blood Na level as first priority. The resulting increase in K:Na ratio in the rumen leads to reduced resorption of Mg through the rumen wall into the blood – hence placing the animal at risk to hypomagnesaemia. However, it is only in extreme cases that a low blood level of magnesium occurs (less than 1.8mg/100ml of blood in cows) and the consequences of the condition (reduced milk yield and even death) may arise without ever detecting low blood Mg.

It is important to note that grass tetany is also common at other times of the year when mg levels are low, especially when cattle are grazing low dry matter grass and when other elements of stress are involved for example calving time. Therefore, it is important to pay close attention to what mineral supplementation is required by the animal at such times.

Slurry is a valuable source of minerals containing a little sodium, some magnesium and a lot of potash. Modest applications of slurry may increase K and Mg levels in herbage. With larger applications however, the high concentrations of potassium tend to depress both Na and Mg levels. The nutrient contribution of slurry should be taken into account when deciding fertiliser policy.

Met Eireann historical weather:  
[www.met.ie/climate/available-data/monthly-data](http://www.met.ie/climate/available-data/monthly-data)