Agriculture and Food Development Authority

Notes

Teagasc Notes for week ending Friday 11th December2020

The importance of Soil fertility on drystock farms

Good productive soils are the foundation of any successful farming system and key for growing sufficient high quality grass to feed the herd. Therefore, the management of soil fertility levels should be a primary objective of every farm. As we aim to make the best possible use of grazed grass in both sheep and beef production systems, we should take a closer look at the factors that drive grass growth. Phosphorous is an important nutrient for plant root development and for livestock nutrition, while potassium increases stem strength, improves drought resistance, cold tolerance and most importantly increases the amount of grass grown. Nitrogen promotes healthy leaf growth of the grass plant.

Teagasc is highlighting 5 steps for effective soil fertility management.

1. Have soil analysis results for the whole farm (soil sampling every 4 years).

2. Apply lime as required to increase soil pH up to target pH for the crop

3. Aim to have soil test P and K in the target Index 3 in all fields

4. Use organic fertilisers such as slurry and farmyard manure as efficiently as possible

5. Make sure the fertilisers used are properly balanced for P & K.

For those farmers aiming to improve soil fertility on their farms, following these 5 steps provides a solid basis for success.

Soil pH and liming requirements:

With many of the soils on dry stock farms having a sub optimal pH, the importance of liming cannot be underestimated as some nutrients in the soil only become available to the grass plant at certain pH levels. High levels of rainfall are a key cause of soil acidity. This is largely due to leeching or washing away of lime and other nutrients in the soil. Crops and livestock also remove lime. A crop of first cut grass silage with a yield of 5t/ha DM removes approximately 75 kg/ha of lime equivalent. A finished bullock removes approximately 25kg while 1,000 litres of milk removes approximately 3kg of lime. Up to 20% of the Nitrogen applied will be lost where lime is deficient in soils.

Lime can be spread all year round, but ideally to bare ground during good weather conditions or incorporated into the seed bed at reseeding. A maximum application rate of 3 tonnes/ acre in a single application is recommended. The application of lime increases grass production, unlocks existing P & K in the soil, and increases the response to fertilisers being spread. It acts as a soil conditioner and allows microorganisms and earthworms to break down manures and organic material in the soil. A target is to maintain mineral soils in the pH range 6.3 - 7.0 and peat soil in the pH range 5.5 - 5.8 to maximise nutrient supply. One of the requirements of the Nitrates Regulations from the 1st January 2021 is to have a 4 year liming programme in place for farms in derogation in 2020 and those farms that exporting slurry in order to remain under the 170kg/ha Nitrates limit in 2020.

Nitrogen, Phosphorous and Potassium requirements:

There is no reliable soil test currently available for N. Therefore, there is no soil Index system for N in grassland. Total N application on the farm and time of application must be compliant with the Nitrates Regulations. Nitrogen fertiliser recommendations are largely matched to the Stocking Rate on the farm. Applying nitrogen fertiliser 'little and often' during the growing season gives most efficient response in terms of grass growth. Details of the amounts of Nitrogen permitted on farm are outlined in the Nutrient Management Plan. Applying insufficient amounts of Nitrogen prior to cutting grass silage can lead to silage having a low protein content. This can impact rumen function due to poor fermentation, and lead to an increase in winter feed costs through supplementation with concentrates.

Soil Index 3 for P & K will ensure that grassland can achieve its full potential throughout the growing season. Well managed grasslands with these levels of fertility are growing 12t DM/ha/yr. The rate of soil P and K change will very much depend on the soil type. For example some soils will respond faster than other soils. Silage fields cut continuously year on year seems to have the lowest levels of soil fertility. Many of the nutrients taken out at cutting time are not being replaced at an appropriate rate. Aim to apply slurry and manures to the silage fields that have high P and K requirements Apply in spring time under cool and moist weather conditions to maximise N recovery.

Soil testing is a cost effective way of improving overall farm performance. Preparing a nutrient management plan based on soil results and the current stocking rate will help to make well informed decisions regarding fertiliser use next spring.

Upcoming Events

Teagasc Kilkenny Waterford will hold a virtual beef seminar on Thursday the 10th of December at 8pm. This event will be delivered via ZOOM. The main topics for the event include

1. How to mean your BEAM obligations for 2021 and reduce N output by 5%. We are 6 months into this scheme and all farmers that applied for the scheme need to focus on how to reduce N output by5% between now and 30th June 2021.
2. Managing cattle performance over the winter with a focus on feeding, housing and animal health.

For further details, check out the Teagasc webpage at www.teagasc.ie. The link to the webinar will be texted to clients and will also be available on our social media pages.

NDP
NATIONAL DEVELOPMENT PLAN