

# All I want for Christmas is ... two pallets of nitrogen!

Having nitrogen in the yard in December will ensure you can apply it as soon as the closed period has passed and conditions allow. Prompt application means you won't miss out on precious early grass growth.

**Stuart Childs,**  
Dairy Specialist, Teagasc Moorepark

A reasonable amount of organic soil nitrogen builds up in the soil over time and some of this can be mineralised over the summer and autumn. This trickle, coupled with some recycling of applied nitrogen, provides enough nitrogen to support the minimal amount of growth that takes place over a normal winter (3kg to 5kg DM/ha).

January and early February are the coldest periods and we can't expect much growth (grass production of just 5kg to 15kg DM/ha/day is the Pasturebase Ireland estimate for the month of February).

But after mid-February, grass growth can rapidly take off, particularly if nitrogen is available in the soil. However, there is a lag period between applying nitrogen and when it starts to give a response.

In fortunate early areas, grass growth tends to get moving from mid-February onwards, the exception

being if prolonged cold weather or wet weather occurs – like the spring of 2018, when ground was saturated even in some of the driest areas.

It is due to this lag that mid- to late January has to be the target date for first nitrogen application in the south and about two weeks later in the north – as allowed under the nitrates directive (Zone A – Jan 13th; Zone B – Jan 16th and Zone C – Feb 1st).

Grass growth needs a temperature of over 6°C for significant growth, and growth increases rapidly as the temperature rises from 6°C up to 12°C and then more slowly from there on.

As stated previously, there will only be a moderate response to this applied nitrogen; indeed, some will say they see only a very limited response to it, but it is vitally important in priming the plant for growth.

As there is only a modest growth response, application rates should be kept to approximately 28kg to 29kg/ha (23 units/acre or a half bag of protected urea).

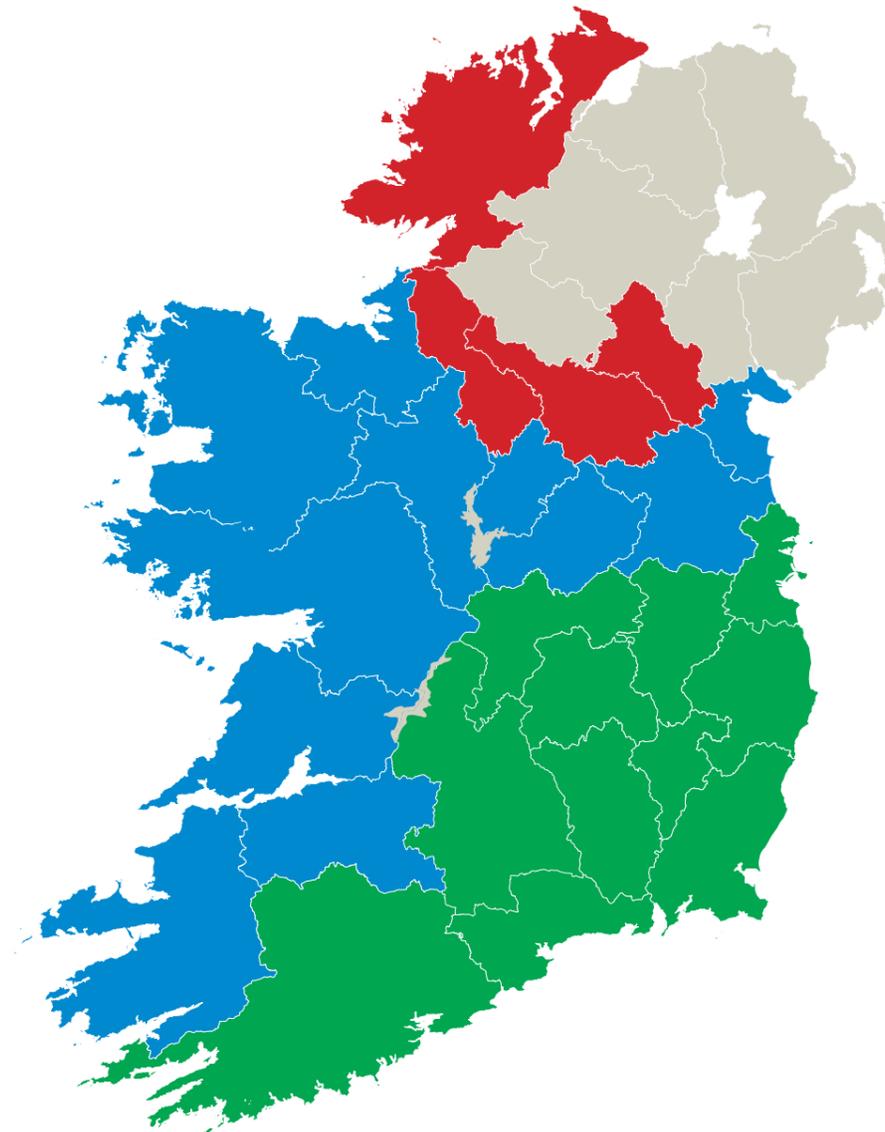
The average grass growth response to early nitrogen applications is 10kg



The average grass growth response to early nitrogen applications is 10kg DM/kg N applied, ie 280kg grass DM/ha for 28kg N/ha applied. On a 40ha farm, this is equivalent to 11.2t of grass DM, which would feed 80 cows on grass full-time along with 4kg of concentrate for a 10-day period – a return that is not to be sniffed at



## Prohibited application periods for fertiliser



Prohibited application period

| Fertiliser type | Start     | Zone A | Zone B | Zone C |
|-----------------|-----------|--------|--------|--------|
| Chemical        | 15 Sep to | 12 Jan | 15 Jan | 31 Jan |
| Organic         | 15 Oct to | 12 Jan | 15 Jan | 31 Jan |
| Farmyard manure | 1 Nov to  | 12 Jan | 15 Jan | 31 Jan |

DM/kg N applied, ie 280kg grass DM/ha for 28kg N/ha applied. On a 40ha farm, this is equivalent to 11.2t of grass DM, which would feed 80 cows on grass full-time along with 4kg of concentrate for a 10-day period – a return that is not to be sniffed at.

Two-thirds of the farm should get this amount, either all in one run, if

the farm is dry enough to do so, or over a period of weeks as ground conditions improve on heavier soils.

The rest of the land should get slurry as its initial nitrogen source, with the balance of the fertiliser N being applied four to six weeks later. Slurry can be applied to the ground that has already received N fertiliser

post-grazing.

From an environmental perspective, the greatest risk of loss of nitrogen from grassland is through run-off. This can occur if the soil is saturated at the time of application or heavy rain occurs soon after application and the nitrogen is carried away before it can be absorbed into the soil.

Don't spread if ground conditions are marginal or if heavy rain is forecast within two days.

Trafficability of land can turn quite quickly though, with the help of increasing day length and some dry weather, even if it is only short lived. When it does you need to be ready to strike. The biggest stumbling block to early application of nitrogen is lack of availability. How can this be?

There are co-op and merchant yards full of fertiliser in preparation for the peak delivery season in January.

Therein lies the problem, as fertiliser in a merchant or co-op yard is not in your yard. The logistics around delivery of these huge quantities creates problems for co-ops, merchants and transport companies, but, most of all, it will create a problem for those who don't have fertiliser in the yard when the spreading season commences, while time is available to spread before the start of calving.

You could be lucky or unlucky as to whether you have fertiliser available when the window of opportunity to spread comes.

A very obvious, simple, but extremely effective solution to this issue is to plan to have enough nitrogen in the yard just to complete the first application.

The average dairy farmer (80 cows) is now farming 40ha (100acres). To give every acre of this farm a half bag of fertiliser is going to take 2.5t of fertiliser, equivalent of two pallets of urea or protected urea with a bit to spare.

Planning to have this in the yard for Christmas or shortly after will allow you to apply your early nitrogen at the time that suits you, and in the most appropriate conditions, once the closed period has passed.

This is important on all farms, but even more so on heavier farms where opportunities to spread can be limited in the early season. Plan ahead and be prepared.

In the past, straight urea has been the product of choice for early application. However, from an environmental perspective, protected urea is preferable due to its significantly better environmental characteristics: reduced ammonia emissions and reduced nitrous oxide losses, both of which are significant issues for our industry in the context of our gaseous emissions targets.