



When to Apply Early Nitrogen (N)

Lack of nitrogen (N) supply in the soil can limit spring grass growth. The timing and rate of fertiliser N application are key decisions for every livestock farmer. Research has shown a large range in grass response to early N (between 5 to 18 kg DM/kg N applied). While the appropriate application of early N is beneficial, the incorrect application of early N is wasteful, costly, pollutes water and increases greenhouse gas emissions.

The following “Do’s & Don’ts” should guide your decisions around early N application.

Do’s



1. Refer to Teagasc guidance on the application of early N.
2. Check weather forecast (www.met.ie) prior to making fertiliser N applications
 - Check soil trafficability before spreading (check soil SMD’s) and
 - Only apply fertiliser N when soil temperature is greater than 5°C and rising.
3. Target fields that are most likely to respond to an early N application (See Table 1):
 - Perennial ryegrass / recently reseeded fields
 - Drier, free draining fields
 - Fields with a grass cover of greater than 400 kg DM/ha or 6 cm grass
 - Fields with optimum soil fertility, i.e. good P and K status, pH > 6.2
4. Replace chemical N fertiliser on approx. 1/3 of the farm with cattle slurry. Target slurry applications to fields with low P & K levels & low grass covers; 25 m³/ha (2,500 gals/ac) by low emission application will supply ~25 kg/ha (20 units/ac) of available N.
5. Use protected urea (NBPT) for early N applications
6. Apply up to 29 kg N/ha (23 units N/ac) in 1st split in late January or early February and avoid fields that have received an application of cattle slurry.
7. Link your early N application strategy with spring feed budget for the farm.
8. Calibrate and maintain your fertiliser spreader in good condition.



Don'ts



1. Don't apply fertiliser N before the end of the prohibited spreading period (Table 3).
2. Never apply fertiliser on waterlogged or frozen soils.
3. Don't apply fertiliser if a yellow rainfall warning is in place or is forecast within the next 48 hours.
4. Never apply fertiliser into buffer margins & know your buffer margins (Table 4).
5. Delay N on bare fields (<400 kg DM/ha); instead spread on fields with 6 cm (cover of 400 kg DM/ha) grass cover or greater.
6. Don't apply fertiliser N on fields that receive slurry in the first round.
7. Don't apply more than 29 kg N/ha (23 units N/ac) in 1st split in late January/early February.
8. Don't apply more than 90 kg N/ha (Slurry N + Chemical N) in total up to early April (Table 1).

Table 1:- Nitrogen fertiliser and slurry application plan for the early spring period on well-drained soil

| Fertiliser/Slurry Split | Month | Product | Rate | 1 st 33% of Farm Area | 2 nd 33% of Farm Area | 3 rd 33% of Farm Area |
|---|------------------------------------|--|--|---|--|----------------------------------|
| 1 | January ¹ / February | Cattle Slurry ² | 2,500 gals/ac 20 units N/ac (25 kg N/ha) | 2,500 gals/ac (20 units N/ac) Lower covers (<600 kg DM/ha) | | |
| | | Protected Urea (NBPT) | 23 units/ac (29 kg N/ha) | | 23 units N/ac (29 kg N/ha) | 23 units N/ac (29 kg N/ha) |
| 2 | March | Cattle Slurry | 2,500 gals/ac (25 kg N/ha) | | 2,500 gals/ac (20 units N/ac) Grazed areas/silage ground | |
| | | Protected Urea (NBPT) | 46 units/ac (58 kg N/ha) | 46 units N/ac (58 kg N/ha) | 23 units N/ac (29 kg N/ha) | 46 units N/ac (58 kg N/ha) |
| Total N by 1 st April ² | | Slurry + Fertiliser N ³ Units/ac (kg/ha) | | 66 units N/ac (83 kg N/ha) | 66 units N/ac (83 kg N/ha) | 70 units N/ac (87 kg N/ha) |

Table 2:- Nitrogen fertiliser slurry application plan for the early spring period on heavy soils (flexibility in application is essential on heavy land)

| Fertiliser/Slurry Split | Month | Product | Rate | 1 st 33% of Farm Area | 2 nd 33% of Farm Area | 3 rd 33% of Farm Area |
|--|---|--|-------------------------------|--|--|---|
| 1 | February ¹ /March/ early April | Cattle Slurry ² | 2,500 gals/ac (25 kg N/ha) | 2,500 gals/ac (20 units N/ac) Driest land with lowest cover and silage ground (Depending on land wetness and weather, this may be more or < 33% of farm) | | 2,500 gals/ac (20 units N/ac) Areas that are trafficable & silage ground (Depending on land wetness and weather, this may be less < 33% of farm) |
| | | Protected Urea (NBPT) | 35 units/ac (44 kg N/ha) | 23 units N/ac (29 kg N/ha) | 46 units N/ac (58 kg N/ha) (Can be completed in 2 splits) | 23 units N/ac (29 kg N/ha) |
| Total N by 10 th April ² | | Slurry + Fertiliser N ³ Units/ac (kg/ha) | | 43 units N/ac (54 kg N/ha) | 46 units N/ac (58 kg N/ha) | 43 units N/ac (54 kg N/ha) |

¹ Application of N for February/March grazing

² Slurry by LESS & chemical fertiliser should only be applied once the open period commences. Assumes slurry at 6% DM, adjust application rates based on slurry DM%.

³ Combination of Protected Urea and cattle slurry available on farm

Table 3:- Closed Periods for the application of organic & chemical fertilisers

| Zone | Chemical Fertilisers | Organic Fertilisers | Farm Yard Manure |
|------|----------------------|---------------------|------------------|
| A | 15 Sept – 12 Jan | 15 Oct – 12 Jan | 1 Nov – 12 Jan |
| B | 15 Sept – 15 Jan | 15 Oct – 15 Jan | 1 Nov – 15 Jan |
| C | 15 Sept – 31 Jan | 15 Oct – 31 Jan | 1 Nov – 31 Jan |

Table 4:- Buffer zones for fertiliser spreading

| Water Source / Body | Chemical Fertilisers (metres) | Organic Fertilisers (metres) | Farmyard manure stored in a field (metres) ** |
|--|-------------------------------|------------------------------|---|
| Water supply >1,000m ³ or >500 people | | 200 m | 250 m |
| Water supply >10m ³ or >50 people | | 100 m | 250 m |
| Water supply other | | 25 m | 50m |
| Lake shoreline | | 20 m | 20 m |
| Exposed cavernous or karstified limestone feature | | 15 m | 50 m |
| Any surface watercourse where the slope towards the watercourse is > 10% | | 10 m | |
| Any other surface waters * | 2 m | 2 m | 20 m |

* The buffer zone for spreading organic fertilisers increase for 2 weeks from 5 m to 10 m before and after the closed spreading period.

** FYM can be stored in a field prior to land spreading during the open period. You are not allowed to store FYM in a field during the closed spreading period.

For further information on any issues raised in this newsletter, or to access other enterprise newsletters, please contact your local Teagasc advisor or see www.teagasc.ie