Fertiliser advice for grassland under prolonged dry soil conditions

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Over recent weeks soil moisture deficits (SMD) have continued to increase due to low rainfall in parts of the country. SMD's currently range from 0 (no deficit) in the north and north-west of the country and up to 64 mm on well-drained soils (figure 1) and 59 mm on poorly-drained soils in the south-east of the country. Once SMD >50 mm growth may become somewhat restricted if these conditions persist for a number of weeks. If the SMD reaches >75mm more severe drought conditions may set in and after 2-3 weeks perennial ryegrass will begin to go dormant i.e. growth will rapidly slow down or cease and the plants will begin to lose green colour. Large quantities of rainfall are required to replenish these high SMD's in the soil. For example as SMD = 25mm [1 inch] of effective rainfall or 250,000 litres/ ha [~22,000 gallons water/ac]). With no rainfall forecast over the coming week in many parts of the south and south-east of the country (week beginning Monday 6th July) SMD's are likely to increase further. However, current grass growth rates for the week commencing 6th July range from 52 – 70 kg DM/ha per day across the country indicating the dry soil conditions are not restricting growth rates currently. However, it will very much depend on rainfall quantities, soil type and the level of SMD within your local region.

The SMD map below shows that the majority soils on the right hand side of the red line are at >50mm and grass growth may become somewhat restricted if these low soil moisture conditions persist and grow over the next few weeks.

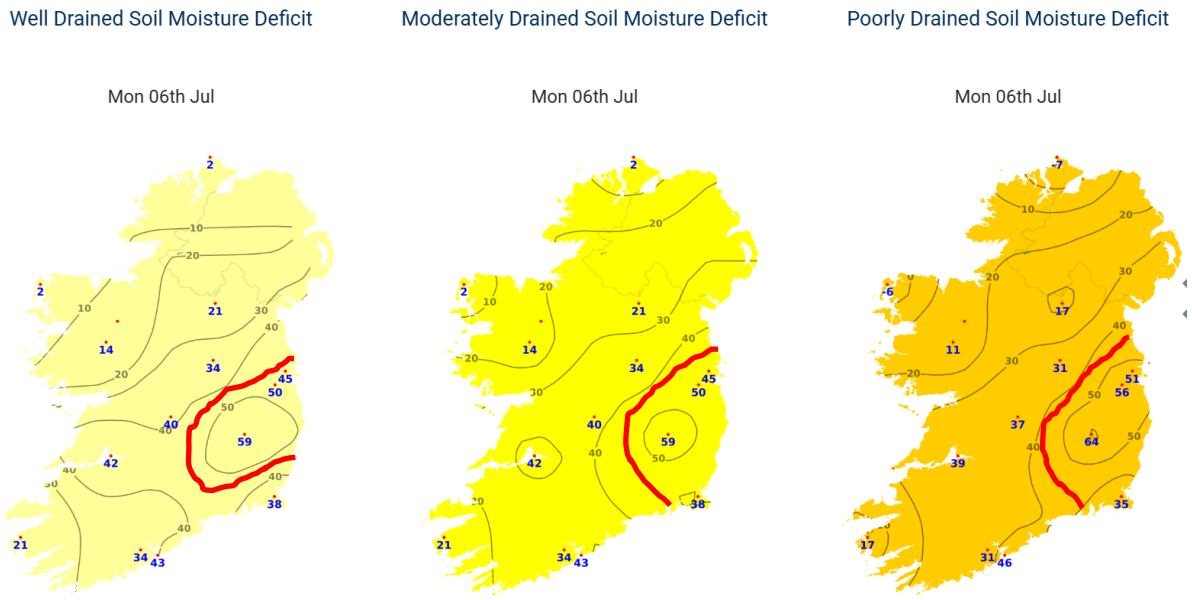

Figure 1. Soil moisture deficits reported by Met Eireann on Monday 6th July

Making Fertiliser N Application decisions during dry /droughty soil conditions

For grass or crop plants to grow a combination or adequate "light, heat, moisture and nutrients" are all essential. Where one or more of these essential inputs for plant growth are reduced or missing, plant growth will be restricted.

Currently grass growth may be somewhat restricted across the majority of the country due to low soil moisture levels. Under lower levels of growth, the grass demand for N uptake will also be reduced. During droughty soil conditions fertiliser N advice needs to be adjusted downwards based on predicted grass growth.

1. Track and assess the soil moisture deficit trends for your region/county provided by Met Eireann https://www.met.ie/forecasts/farming
   - 25-40mm SMD is normal for the late summer period and will have limited negative effect on grass growth in most soil types.
   - ≥ 50mm, SMD will lead to a significant reduction in grass growth for during the summer and early autumn period if these dry soil conditions persist for >3 weeks.
   - ≥ 75mm, SMD will lead to severe drought conditions and little or no grass growth if these extremely dry soil conditions persist for > 3 weeks.

2. Consult regional weather forecasts for the next 7 days to establish if rainfall is likely and if soil moisture levels to support plant growth are likely improve.
   - Larger accumulations (> 10mm) of rainfall may be needed to supply adequate moisture to soils to help alleviate more severe drought restrictions on grass growth (i.e. help kick-start grass growth again).

3. Assess measured or predicted grass growth rates for your farm or region/county. Figure 2 below shows predicted grass growth rates for the week beginning 6th July 2026 with a wide range depending on location.
   - If grass growth falls below 50 kg DM/ha per day fertiliser N applications may need to be reduced in line with grass N uptake potential.

Making Fertiliser N Application Decisions during drying /droughty soil conditions

- ✓ Match N fertiliser rates to grass growth levels. The N uptake by grass swards at different daily growth rates and rotation lengths are shown in table 1. Fertiliser N applications should be tailored to the N demand of the grass swards under dry soil conditions when growth is restricted.
- ✓ Where possible use a compound N-P-K or N-K fertiliser as the potassium (K) will help to regulate the water balance in the grass plant and to be more resilient to drought conditions while also improving nitrogen uptake and growth.
- ✓ If SMD ≥ 50mm and grass growth rates fall to <50 kg DM/ha per day reduce fertiliser N applications in line with demand and top up with additional N once sufficient rain arrives.
- ✓ If SMD is ≥ 75 (severe drought) and grass growth is << 50 kg DM/ha hold off further N applications until sufficient rain arrives or further rain is forecast. Where re-growths are poor or non-existent, stop spreading fertiliser. Have fertiliser bought for spreading as soon as rain comes

✓ Under persistent drought and restricted grass growth conditions, repeated N fertiliser applications during the summer and early autumn (July and August/September) may build up soil N levels above the needs of the grass for the remainder of the growing season. Surplus N remaining in the soil root zone in October and November increase the risk on N leaching (N loss in drainage water) to groundwater, rivers and streams over the winter.

Grass Growth (kg Dry Matter, per hectare, per day) updated on the 6th July 2026

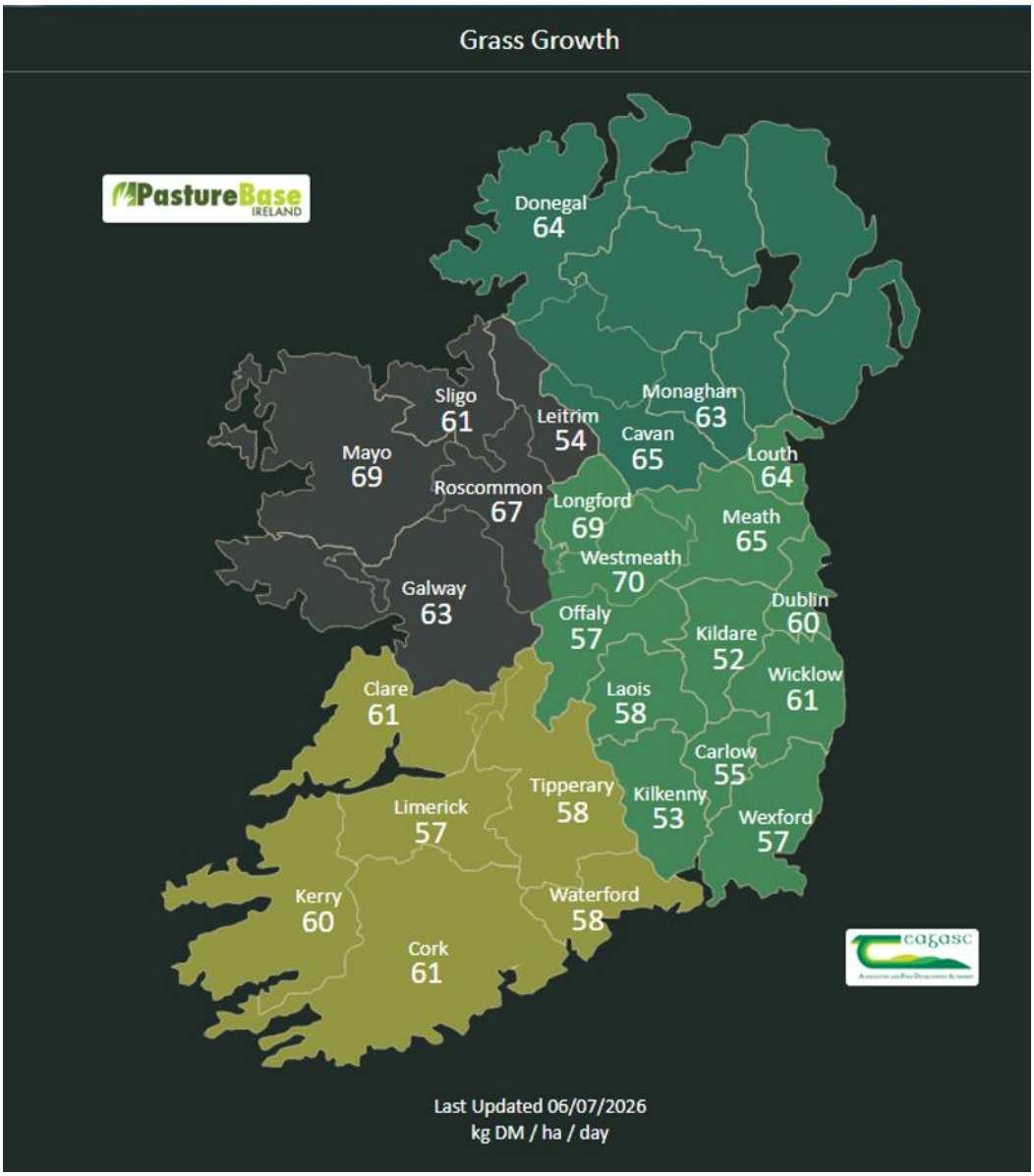

Figure 2. Grass growth rates from Pasture Base Ireland.

Table 1. Typical nitrogen uptake levels by grass swards (kg/ha) based on growth rates

Growth Rate (kg/ha/day)	Rotation length (days)				
20	18	21	24	27	days
Total grass production	360	420	480	540	kg/ha DM
Total N uptake*	11	13	14	16	kg/ha N
Likely N Fertiliser uptake	**8**	**9**	**10**	**11**	kg/ha N
30	18	21	24	27	days
Total grass production	540	630	720	810	kg/ha DM
Total N uptake*	16	19	22	24	kg/ha N
Likely N Fertiliser uptake	**11**	**13**	**15**	**17**	kg/ha N
40	18	21	24	27	days
Total grass production	720	840	960	1080	kg/ha DM
Total N uptake*	22	25	29	32	kg/ha N
Likely N Fertiliser uptake	**15**	**18**	**20**	**23**	kg/ha N
50	18	21	24	27	days
Total grass production	900	1050	1200	1350	kg/ha DM
Total N uptake*	27	32	36	41	kg/ha N
Likely N Fertiliser uptake	**19**	**22**	**25**	**28**	kg/ha N
60	**18**	**21**	**24**	**27**	days
Total grass production	1080	1260	1440	1620	kg/ha DM
Total N uptake*	32	38	43	49	kg/ha N
Likely N Fertiliser uptake	**23**	**26**	**30**	**34**	kg/ha N
70	18	21	24	27	days
Total grass production	1260	1470	1680	1890	kg/ha DM
Total N uptake*	38	44	50	57	kg/ha N
Likely N Fertiliser uptake	**26**	**31**	**35**	**40**	kg/ha N

Based on typical N concentration per kg grass dry matter (DM) of 3% and grass N response of 30:1

** Total N uptake by grass over the period from all N sources i.e. soil N mineralization, chemical and organic fertilisers and N deposition in dung and urine*