

Soils, Nutrients and Fertiliser Factsheet

Fertiliser Advice for Cereals



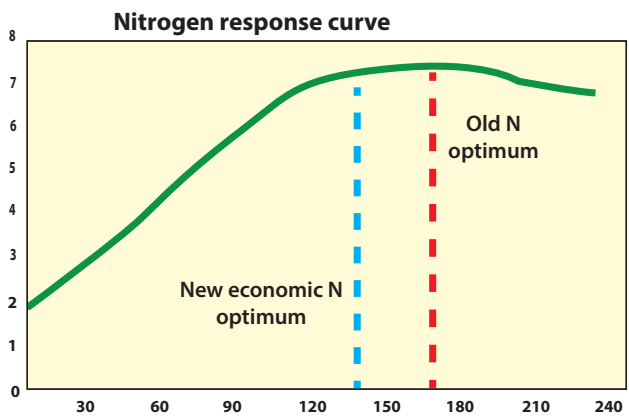
Complete soil sampling for cereal crops and use the results to complete a full Nutrient Management Plan (NMP). The NMP should focus on:

- Lime is the cheapest fertiliser and makes all other nutrients more available
- P & K requirement should be matched to off-takes at soil Indices 1 to 3
- At soil Index 4 where pH is lower than 7, then there is no P & K required
- In fields where straw was chopped, or organic manures applied, you can reduce P & K requirements
- 'Straight Fertilisers' products may be suitable for some sites where either P or K are at Index 4
- At soil Index 1 or 2 drill the compound fertiliser at sowing time

1. Nitrogen

The ratio between the value of grain and the cost of N has doubled in the last 12 months, so the economic yield response to the application of N has changed

- All crops have a N response curve, which reaches a point where the yield response to N flattens out. This point is called the agronomic optimum N rate (see curve below - red line)
- Reducing the nitrogen rates may reduce yield by 0.2 to 0.5 t/ha, however despite this yield drop, and factoring in the costs of nitrogen, these crops will give a better return than continuing as normal
- The graph will also reach a point called the economic optimum rate where the additional yield will not cover the cost of the N applied. This is the Break Even Ratio (BER) (blue line). This BER point on the curve will occur this year before you reach the agronomic optimum nitrogen rate (see table 1)
- Based on the current cost of N versus the current value of grain, research shows that the maximum N rate at which this BER occurs is 20 to 30 kg/ha



N rate kg/ha

Example: Winter wheat 10 t/ha yield; N index 1

Note: Allowance of 20 kg N/ha per tonne grain yield/ha above reference yield (see Nitrates Directive)

210 kg + 20 kg (Bonus Yield) = 230 kg/ha – 30 kg/ha = 200 kg N/ha (Economic Opt. N Rate)

Example 2: Spring feed barley 7.5 t/ha yield; N index 1

135 kg + 20 kg (Bonus Yield) = 155 kg/ha – 30 kg/ha = 125 kg N/ha (Economic Opt. N Rate)



Table 1. Nitrogen rates at different soil indices

Crop	Reference yields (t/ha)	Nitrogen Index			
		1 (kg/ha)	2 (kg/ha)	3 (kg/ha)	4 (kg/ha)
Winter wheat	9.0	210	180	120	80
Spring wheat	7.5	160	130	95	60
Winter barley	8.5	180	155	120	80
Spring barley	6.5	135	100	75	40
Winter oats	7.5	145	120	85	45
Spring oats	6.5	110	90	60	30

Index 1 = (continuous cereals), Index 2 (after a break crop – beans beet etc.)

Table 2: Fertiliser costs

Costs based on compound (P & K Index 3) + CAN up to target yield + 50% K top up

	Winter wheat €/ha	Winter barley €/ha	Winter oats €/ha	Spring wheat €/ha	Spring F. barley €/ha	Spring oats €/ha
Fertiliser costs 2021	345	303	271	391	262	241
Fertiliser costs 2022 (estimate)	882	765	648	713	635	563
Multiply your costs by ha grown 2021						
Multiply your costs by ha grown 2020						
Total farm fertiliser cost in 2021				€		
Total farm fertiliser cost in 2022				€		
Extra cost to be financed				€		

Other crops can be added to this table to get the total costs for the entire farm