Nitrogen requirements for grass (from AHDB Nutrient Management Guide, RB209):

Table 3.9 Nitrogen recommendations for grazed swards

Nitrogen application rate per grazing rotation and approximate application date								
Indicative DM yield[a]	Jan/Feb	Mar	Apr	May	Jun	Julc	Aug[c]	Total N applied
t/ha	kg N/ha							
4–5		30						30
5–7		30		20				50
6–8		30		30		20		80
7–9		40		30	30	30		130
9–12		30	30	30	30	30	30	180
10–13	30[b]	40	40	30	30	30	30	230
12–15+	30[b]	40	50	50	40	30	30	270

a. The recommendations take account of nitrogen recycled at grazing.
b. Only applicable to areas with a long grass growing season; the first nitrogen application could be applied as early as mid-to-late January, with the second application in early March.
c. If previous growth has been severely restricted by drought, reduce or omit this application. Applications of N after August are not usually productive because of the supply of nitrogen from soil organic matter at that time. Check nitrate vulnerable zones (NVZ) rules for guidance on timing.

Table 3.8 Nitrogen recommendations for grass silage

Target annual DM yield[a]	N application rate				Total N applied[b]
	First cut	Second cut	Third cut	Fourth cut	
t/ha	kg N/ha				
5–7	70	-	-	-	70
7–9	80	50	-	-	130
9–12	100	75	75[c]	-	250
12–15+	120	90	70[c]	30[c]	310[d]

a. DM yield as harvested in the field for all cuts combined. Does not include spoilage in the clamp. Fresh yield is four times these values if the silage is 25% DM.
b. As manufactured fertiliser and crop available nitrogen from organic materials.
c. If previous growth has been severely restricted by drought, reduce or omit this application.
d. This total N could be applied to a three-cut system (yielding around 15 t DM/ha), with the fourth cut recommendation of 30 kg N/ha being split between the second and third cuts.
In the absence of detailed research for haylage, use similar rates to that for silage, as shown in Table 3.8.

Table 3.10 Nitrogen recommendations for grass hay production

	Soil Nitrogen Supply		
	Low	Moderate	High
	kg N/ha		
Each hay cut	100	70	40

Phosphate and Potash requirements for grass (from AHDB Nutrient Management Guide, RB209):

Table 3.4 Phosphate and potash recommendations for grazed swards

Nutrient	P or K Index			
	0	1	2	3
	kg/ha			
Phosphate[a]	80	50	20	0
Potash[b]	60	30	0	0

a. Phosphate may be applied in several small applications during the season, though there may be a small response if it is all applied in early spring for the first grazing.
b. Potash may either be applied in one application in June or July, or in several small applications during the season. At Index 0, apply 30 kg potash per ha for the first grazing. Where there is a known risk of hypomagnesaemia, application of potash in spring should be avoided.

Table 3.3 Phosphate and potash recommendations for grass silage

Nutrient	P or K Index				
	0	1	2	3	4 and higher
	kg/ha				
First cut (23 t FW/ha)					
Phosphate[a]	100	70	40M	20	0
Potash[b] – previous autumn	60	30	0	0	0
Potash[b] – spring	80	80	80M (2-) 60 (2+)	30	0
Second cut (15 t FW/ha)					
Phosphate[a]	25	25	25M	0	0
Potash[b]	120	100	90M (2-) 60 (2+)	40	0
Third cut (9 t FW/ha)					
Phosphate[a]	15	15	15M	0	0
Potash[b]	80	80	80M (2-) 40 (2+)	20	0
Fourth cut (7 t FW/ha)					
Phosphate[a]	10	10	10M	0	0
Potash[b]	70	70	70M (2-) 40 (2+)	20	0

a. At soil phosphate Index 2 or above, the whole of the total phosphate requirement may be applied in the spring. At phosphate Index 0 and 1, the phosphate recommendation for the third and fourth cuts may be added to the second cut recommendation and applied in one dressing.
b. To minimise luxury uptake of potash, no more than 80–90 kg potash per ha should be applied in the spring for the first cut. The balance of the recommended rate should be applied in the previous autumn. The yields are based on wilted silage at 25% dry matter content as removed from the field. FW = fresh weight. M = maintenance level

At soil K Indices 2+ or below, extra potash is needed after cutting as follows: • In one- or two-cut systems, apply an extra 60 kg potash per ha after the last cut or by the autumn. Where grazing follows cutting, this may be applied as an extra 30 kg potash per ha per grazing for up to two grazings • In three-cut systems, apply an extra 30 kg potash per ha after cutting • In four-cut systems, no extra potash is needed

Table 3.5 Phosphate and potash recommendations for hay

Nutrient	P or K Index				
	0	1	2	3	Over 3
	kg/ha				
Phosphate	80	55	30M	0	0
Potash	140	115	90M (2-) 65 (2+)	20[a]	0

a. Potash may be unnecessary in upper half of Index M = maintenance level