Grass: Yield, Quality And Utilisation

SAC Consulting: Poppy Frater

SAC Consulting is a division of SRUC

Leading the way in Agriculture and Rural Research, Education and Consulting

Base feed = pasture

SAC Consulting Farm Management Handbook:

100 units/acre

Intensity-										
Fertiliser kg N/yr	75	(60)	125	(100)		40)	250	(200)	310	(248)
VARIABLE COSTS										
Seeds	19		19			19	19		19	
Fertiliser	66		91		125		172		211	
Sprays	13		13		13		13		13	
Establishment (annual share)	67		67		67		67		67	
Other expenses	-		-		-		-		-	
	166	(67)	191	(77)	225	(91)	272	(110)	311	(126)
Rent	370		370		370		370		370	
Total	**536**		**561**		**595**		**642**		**681**	

Per tonne? Depends on yield

£561/ha means…

- 7 t DM/ha/year = £80/tonne DM
- 5 t DM/ha/year = £112/tonne DM
- 3 t DM/ha/year = £187/tonne DM

Three key areas

In order of priority…

1. Soil health
2. Grazing management
3. Reseeding

1. What does this key area involve?

2. Why is it important for grassland management?

Summarise in two sentences

Soil Health

1. Structure

- Signs of poor soil structure?

1. Structure: action required?

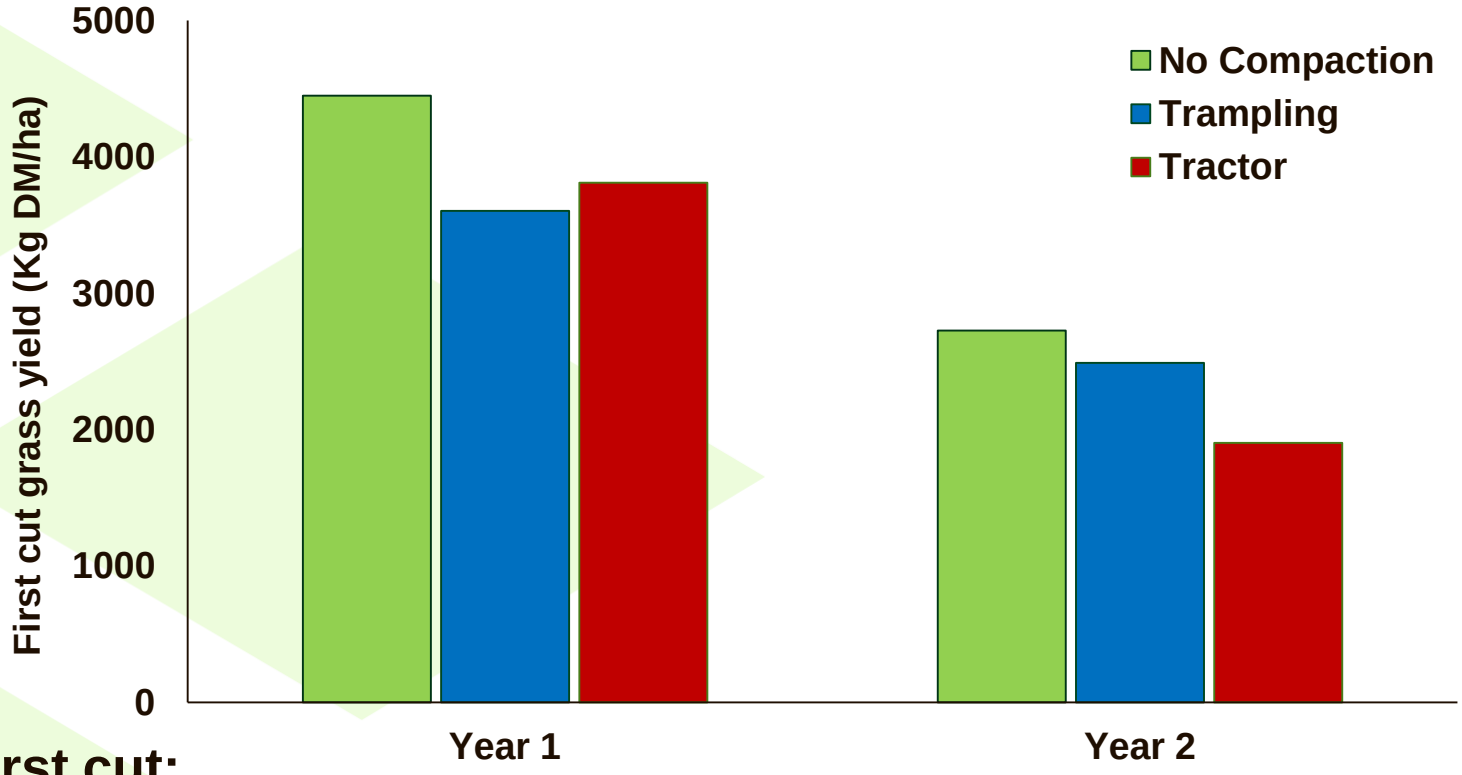
Severity?

Target compaction with correct kit

- 0-10 cm – aerator
- 10-15 cm – sward lifter

Timing – Autumn if conditions allow

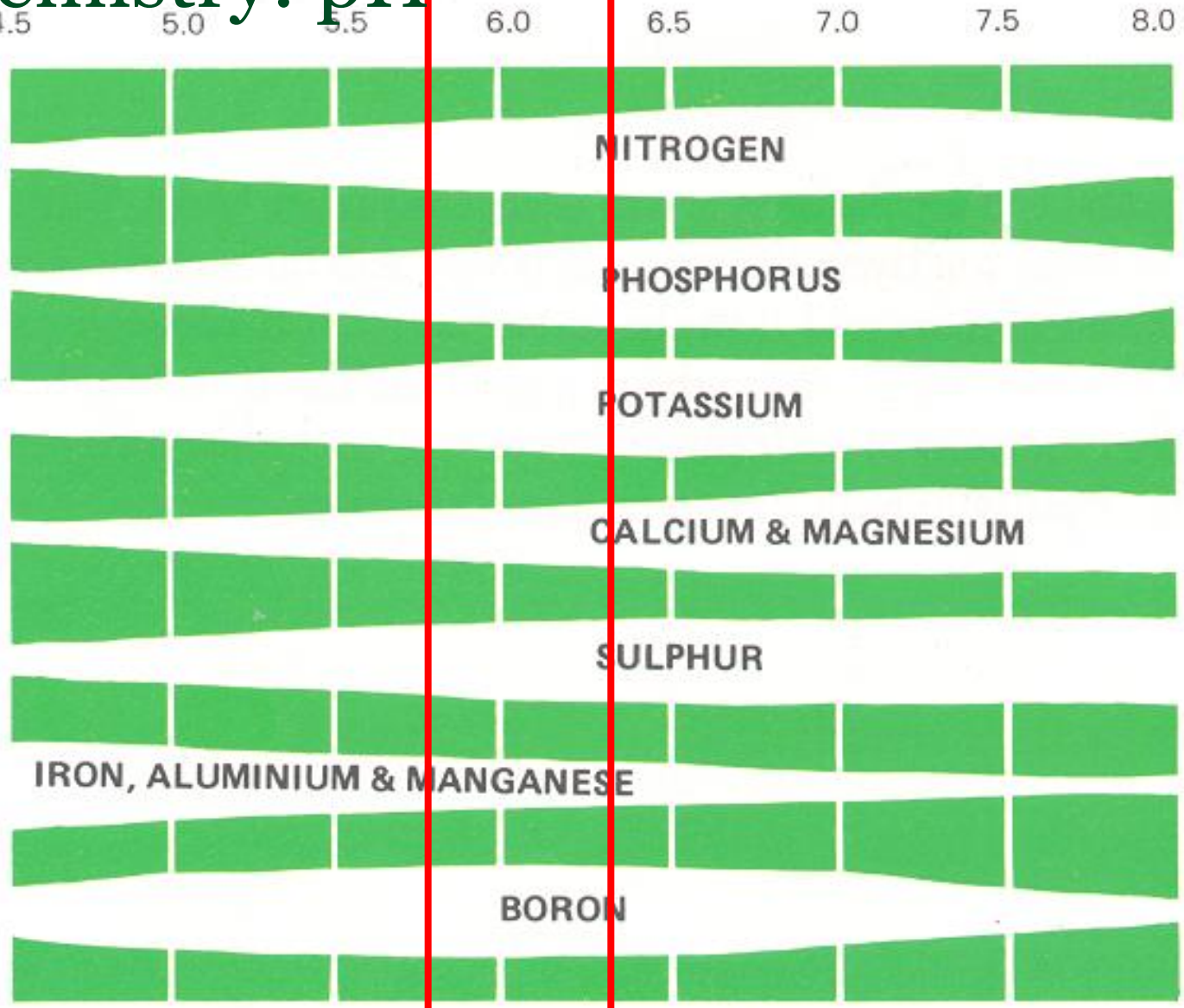
1. Structure: Crichton research



At first cut:

- Trampling compaction reduced grass DM yield by 14%
- Tractor compaction reduced grass DM yield by 22%

2. Chemistry: pH



2. Chemistry: ?

3. Biology

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Grazing Management

The rotational grazing double whammy effect…

System	Annual Yield (t DM/ha)	Utilisation (%)	Usable yield (t DM/ha)	Percentage increase
Set stocking	8.5 (modest)	50	4.3	
Lax rotational	10.2	65	6.6	56%
Intense rotational	10.2	80	8.2	92%

NB some top dairy farmers are growing over 14tDM/ha and utilising >80%!

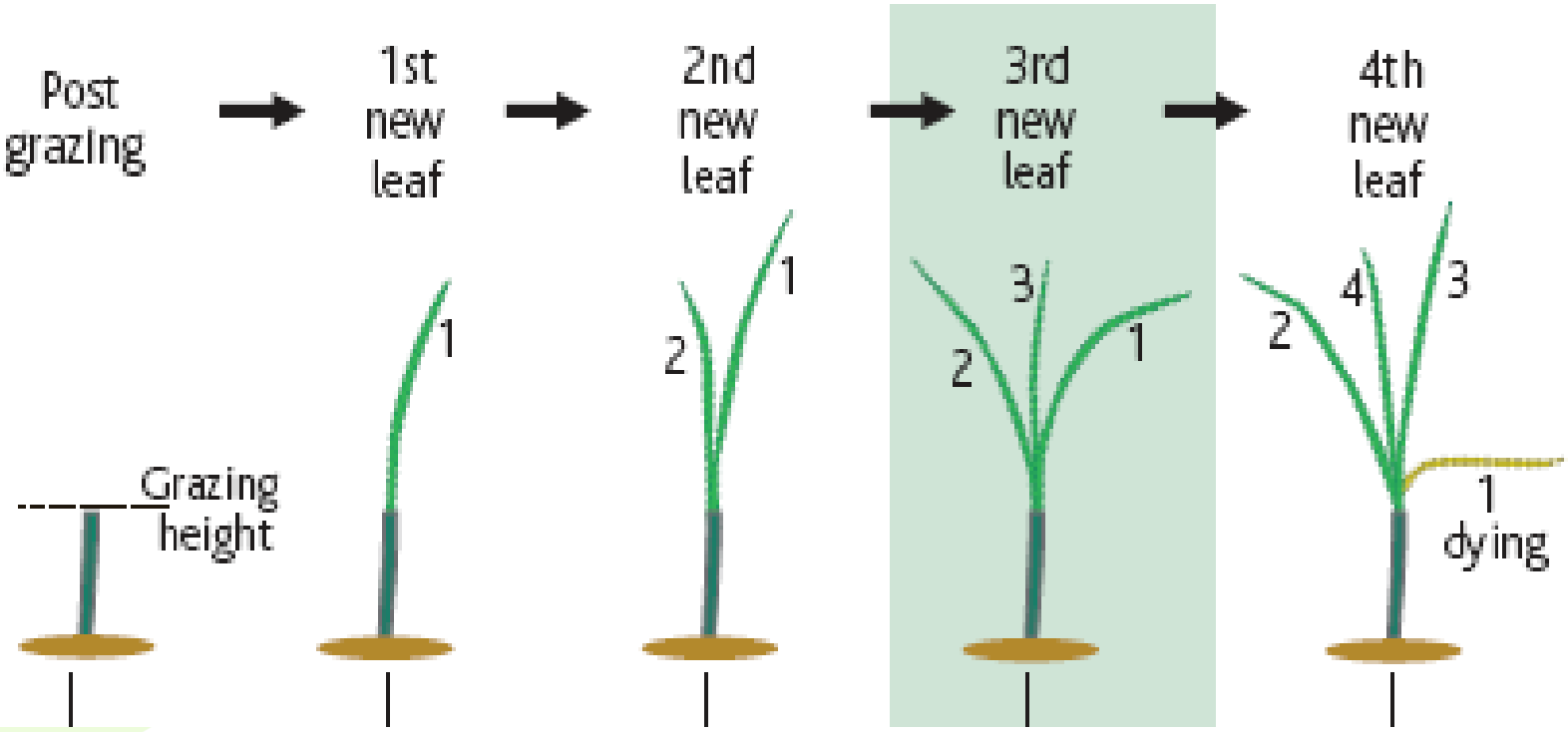
Plus improved quality…triple whammy

Leaf 11.5 MJ ME/kg DM

Stems 10.5 MJ ME/kg DM

Dead leaves <8 MJ ME/kg DM

Optimising grazing timing



How – the short answer

- Generally 7 acres is a good field size
- In at 10cm out at 4 cm (sheep) 5-9cm (cattle)
- Rest:

  Depends on grass growth, but generally..
  - Spring – 15-20 days
  - Summer– 25 days
  - Autumn – 30-40 days
  - Winter – 90-100 days

TYPE OF STOCK	PERIOD	ROTATIONAL PRE GRAZING HT-CM	ROTATIONAL POST GRAZING HT - CM	SET STOCKED CM
Lactating suckler cows	T'out- May	10-14	5-6	5-6
	June-July	12-15	7-8	7-8
	Aug-Nov	12-15	8-9	7-9
Dry cows				4
Growing/finishing cattle	T'out- May	10-12	5-6	5-6
	June-July	10-14	6-7	6-7
	Aug-Sept	10-15	7-8	7-8

TYPE	PERIOD	ROTATIONAL PRE GRAZING HT-CM	ROTATIONAL POST GRAZING HT-CM	SET STOCKED CM
Ewes & lambs	T'out- April-May-wean	8-10	4-5	4
		8-10	4-6	4-6
Dry ewes	July-Aug			3
Pre-tupping	Sept-Nov	8-10	4-5	6-8
Weaned lambs	July-Sept	10-12	5-7	6-8

How?

1. Calculate feed supply
2. Daily flock/herd requirements
3. Supply ÷ Daily requirement = days of feed available

Feed supply

Measure: Kilograms of Dry matter (DM)

- Sward sticks
- Plate meters

Deduct: what you want to leave behind ‘The residual’ ~1500 kg DM/ha

Daily flock requirement – a guide

Stock	Allocation (% of bodyweight)
Dry Ewes or Cows Pregnant ewes or cows Late lactation cows	2
Finishing cattle Early to mid lactation cows Mid to late lactation ewes Replacements	2.5
Growing cattle Flushing ewes or cows	3
Early lactation ewes Growing lambs	4

Daily flock requirement – a guide

Stock	Allocation (% of bodyweight)

A 70 kg ewe in late pregnancy requires:

0.02 (2%) x 70 = 1.4 kgDM/head/day

Flock size is 200, therefore need 280 kg DM/day

Example

8ha field:
DM: 2400 kg DM/ha

x 8 = total 19200 kg DM

Deduct residual: 1500 kg DM/ha

x 8 = total 12000 kg DM

Available feed (excluding growth) is **7200 kg DM**

Allocation: 200 x 70 kg ewes at 2 % of their body weight/day

280 kg DM/day

Divide available feed by daily allocation = 25 days

Example

8ha
DM

Dec

Ava

Allo
wei

DM

DM

y

ay

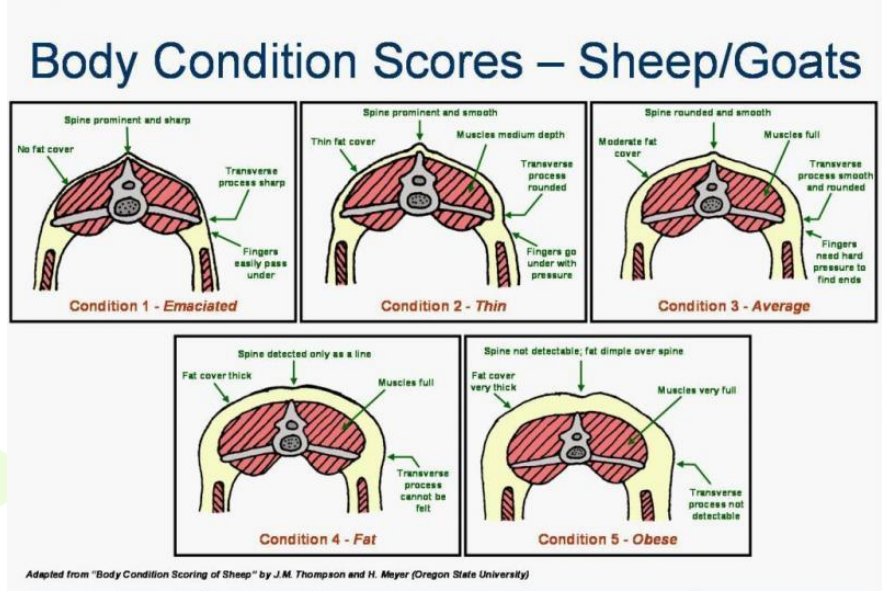
Now I know how many days of feed, I can set up electric-fenced paddocks:

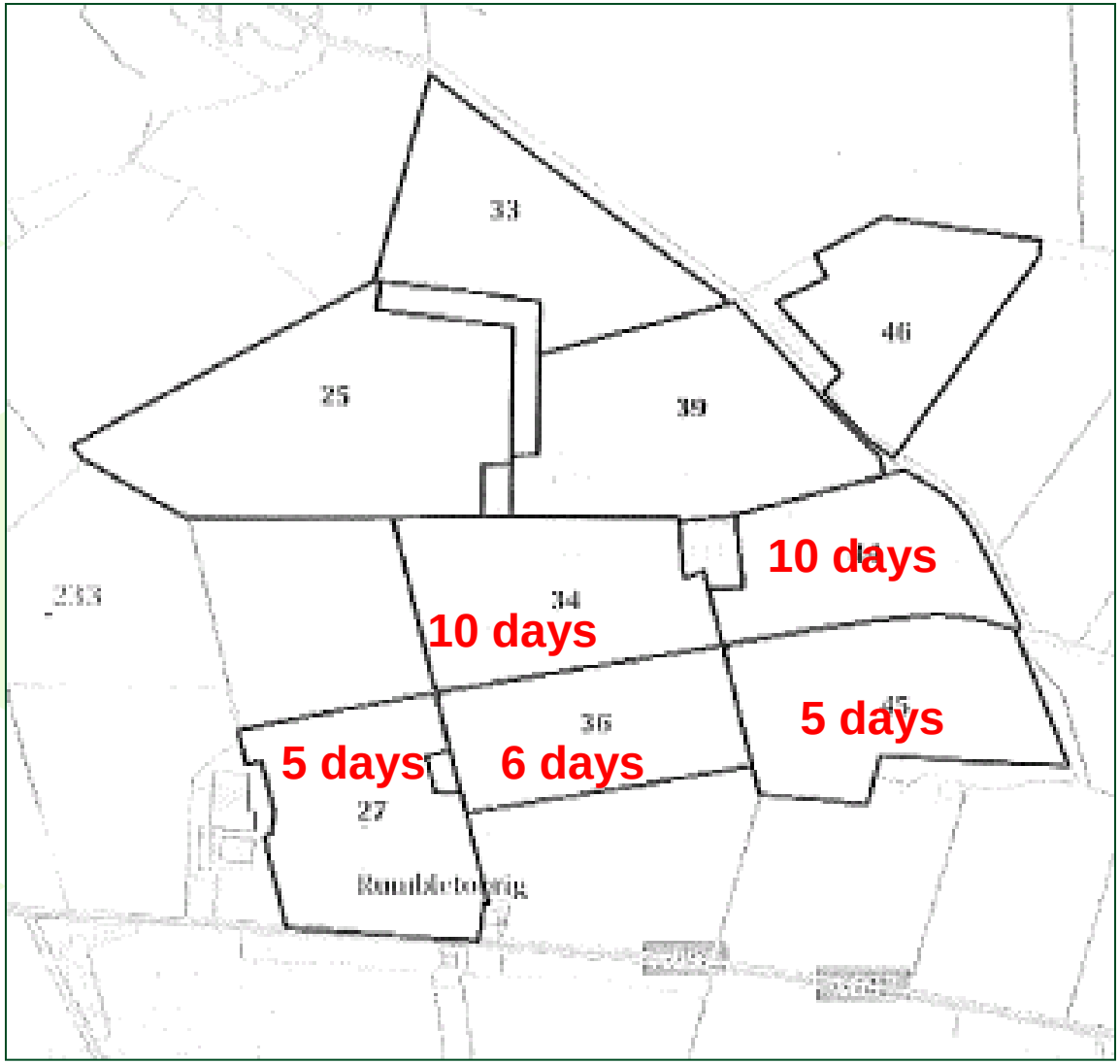
- Split field in half, move after 12 days
- Split into 5 and move every 5 days
- Split into 25 and move every day

Divide available feed by daily allocation = 25 days

Ground truthing

- Body condition scoring
- Behaviour
- Liveweight gain
- Measure grass left behind




33
46
25
39
10 days
34
10 days
36
5 days
5 days
6 days
27

Reseeding

Why?

- Improve species composition
- Incorporate new grass genetics
- Address soil compaction

Table 1: The progress of a grass reseed

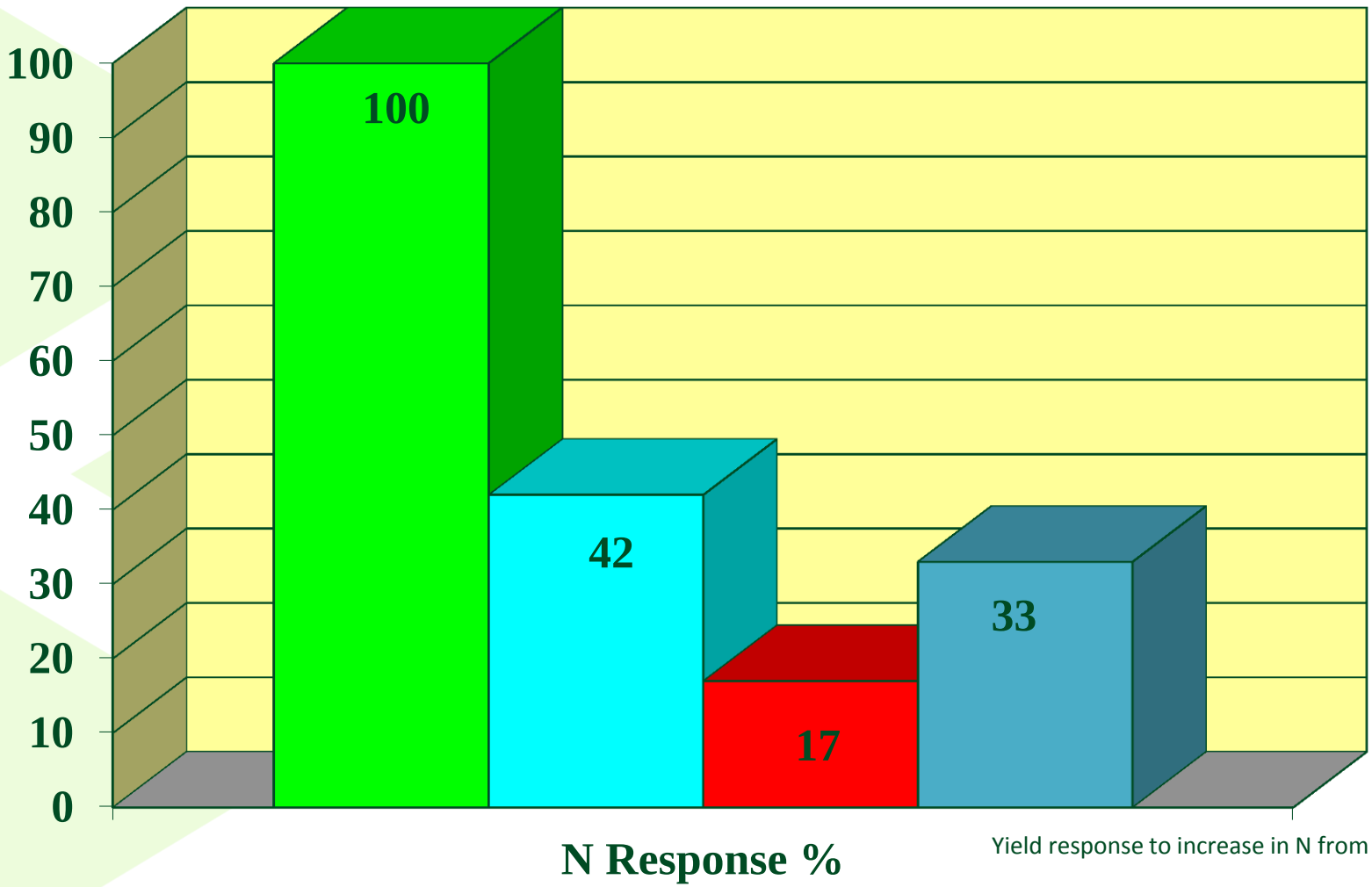
PRG Content (%)	Production (t DM/ha)	Herbage ME (MJ/kg DM)	Lost ME grown (MJ/ha)	Milk equivalent of lost ME (litres/ha)	Meat equivalent of lost ME* (kg LW/ha)	Concentrate cost to replace lost ME^ (£/ha)
95	13.5	12.0				
90	12.6	11.8	13,320	1,885	133	197
80	11.2	11.5	33,200	4,698	332	491
70	9.8	11.3	51,260	7,254	513	759
60	8.4	11.0	69,600	9,849	696	1,030
50	7.0	10.8	86,400	12,226	864	1,279

ME = Metabolisable energy *assuming 100MJ per 1kg of gain for 350kg growing cattle ^based on 1.4p per MJ of ME

PRG = Perennial ryegrass DM = Dry matter

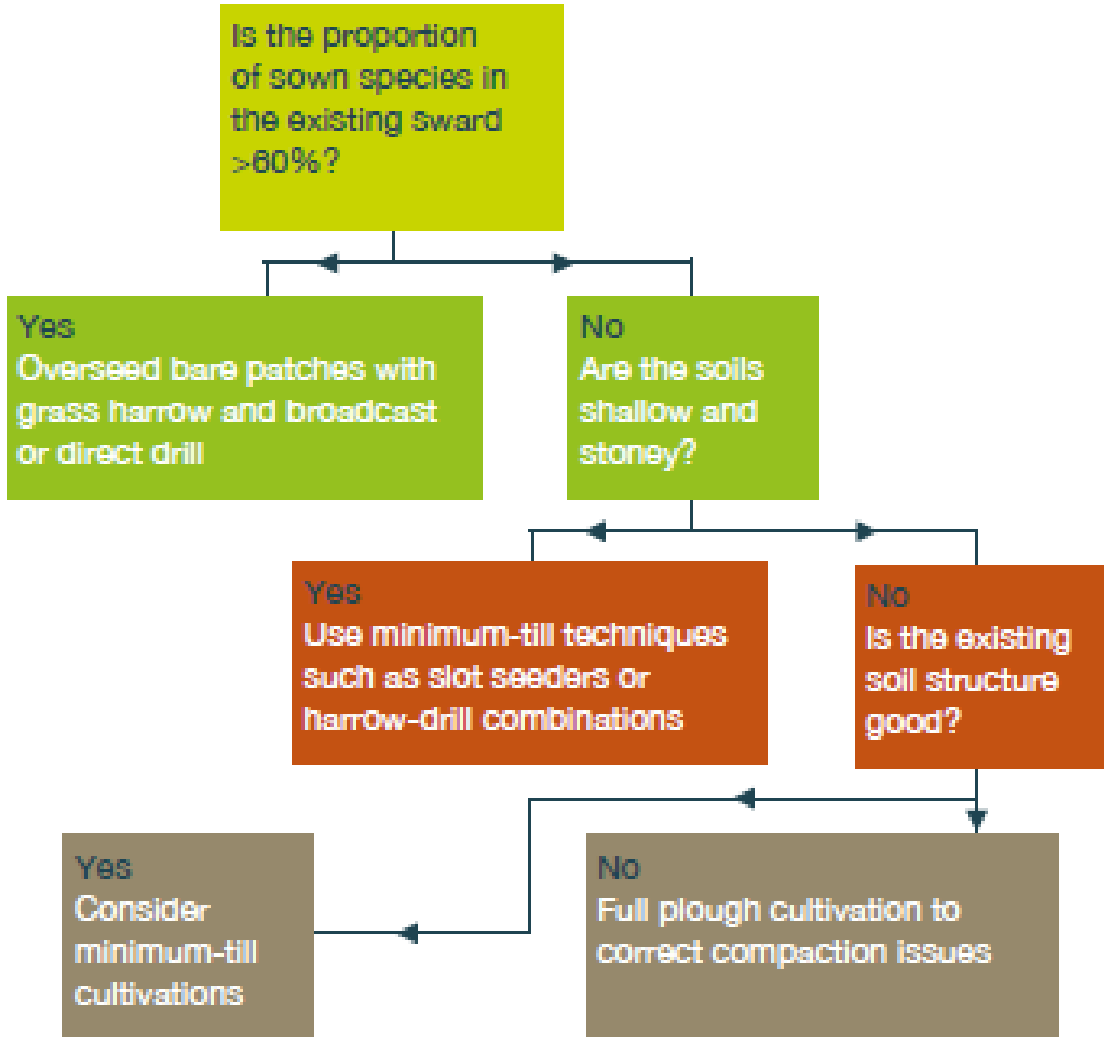
Taken from AHDB Grassland Reseeding guide

Response to N



Yield response to increase in N from 50 to 150 units

Source WPBS



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