GrassCheck Farm Walk

Paul and Frank Turley

Struell Farm, Downpatrick, Co. Down

Wednesday 29th August 2018

GrassCheck is supported by:

Department of Agriculture, Environment and Rural Affairs www.daera-ni.gov.uk

The Research Challenge Fund

CIEL Centre for Innovation Excellence in Livestock

AgriSearch, AFBI & CAFRE would to like to thank the Turley family for hosting this event

“Beef from Grass”

- 3 year project funded by DAERA and AgriSearch
- Grazing trials to investigate the effects of different grazing strategies and sward types on:
  - Grass growth and quality
  - Animal performance
- On-farm work to:
  - Provide detailed understanding of grass growth **potential** across Northern Ireland
  - Identify **actual** variability in grass production and quality on commercial farms
  - Monitor livestock **performance** across a range of animal types and environmental conditions

NI Grassland – State of Play

- Grass remains the cheapest feedstuff available for beef, dairy and sheep in Northern Ireland
- Significant potential to increase grassland performance on farm
- Increasing utilised grass yield by 1 t/DM/ha and quality by 0.5MJ:
  - ⬆ 19% stocking rate per hectare
  - ⬆ 35% liveweight gain per hectare
  - ⬇ 21% concentrate input per hectare

1 tonne extra grass dry matter utilised = +£204/ha

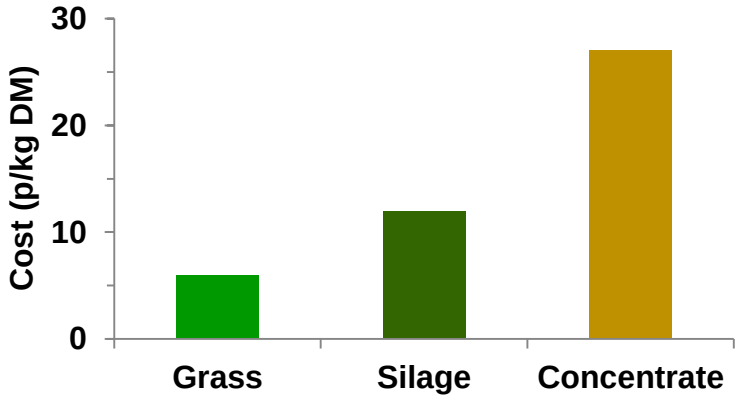


Fig. 1: Cost of individual feedstuffs

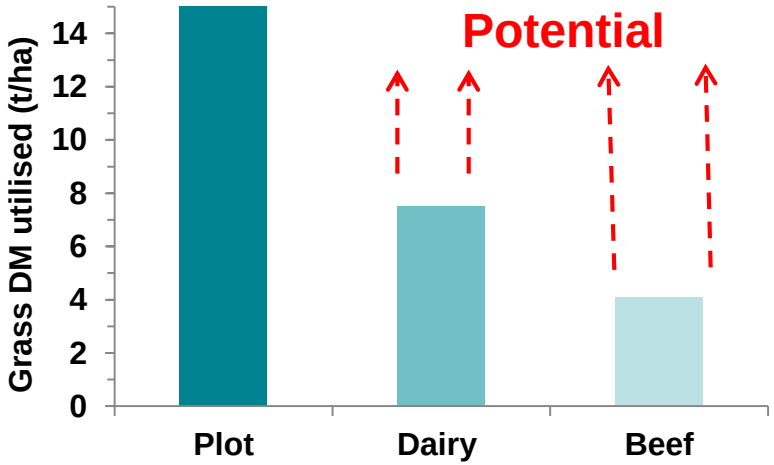


Fig. 2: Estimated grass utilisation on NI farms

GrassCheck: background

- Long term grass growth and quality monitoring project
- Grass growth forecasting:
  - 7 day
  - 14 day
- Network of 48 commercial dairy, beef and sheep grass monitor farms
- Range of systems, land type, growth potential & management intensity

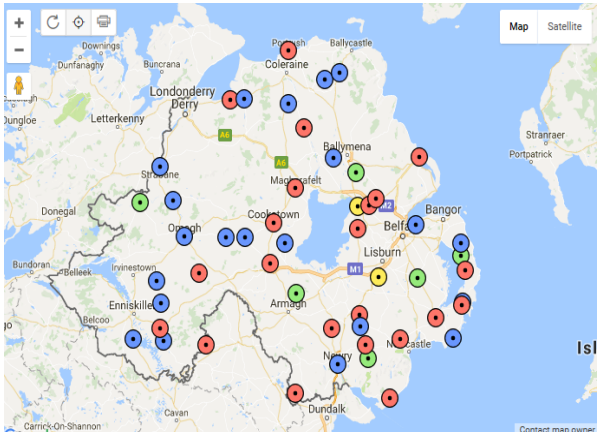


Fig. 3: GrassCheck farm network

Grass growth

Grass quality

Weather data

http://www.agrisearch.org/grasscheck

Struell farm – Paul and Frank Turley

Land area - 2018

- 400 acres
- 370 ac grass
- 30 ac brassica

Livestock -

Currently on-farm

- 150 Suckler Cows
- 185 weanlings
- ~109 Bucket Reared AAX Calves

Sold

- 40 cows
- 200 beef cattle sold or finished off grass

Aim:
To build a resilient & profitable family farm business that is a pleasure to operate & will endure into the next generation

2018 growing season

- Plot growth to date = 7.1 t DM/ha **(20% deficit)**
- Monthly growth (kg DM/ha/day):
  - March = ⬇ 6 kg
  - Early / Mid-April = ⬇13 kg
  - May = ✚18 kg
  - June = ⬇24 kg (up 1 week)
  - July = ⬇41 kg
  - Early August = ⬇ 22 kg
- Huge variation across counties due to drought
  - Restricted growth in south east from late May
  - Record growth rates achieved in west
- Grass quality down in dry spell but recovering

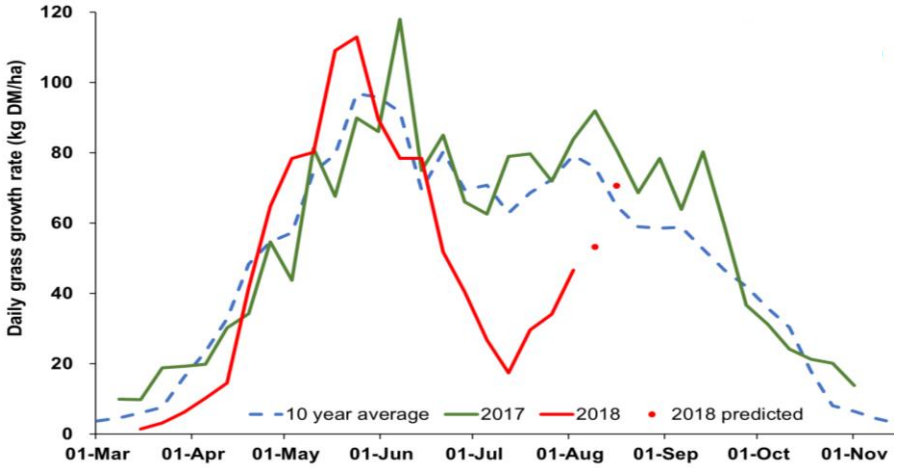


Fig. 4: Grass growth curve

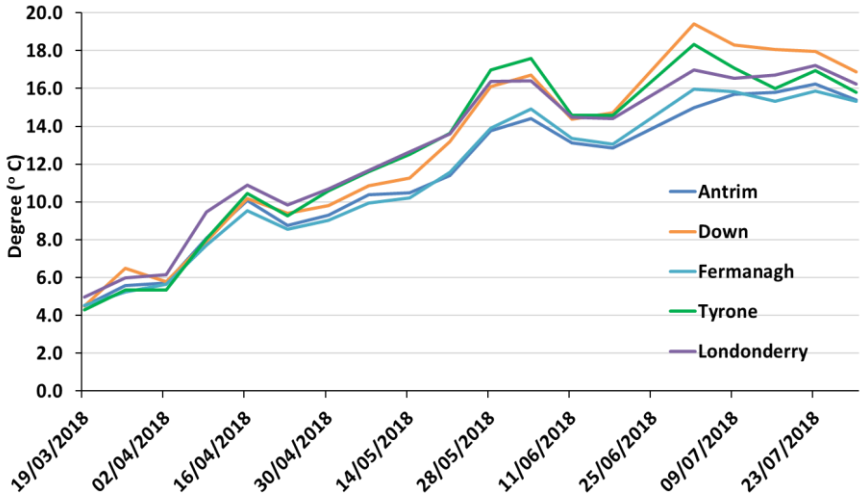


Fig. 5: 2018 soil temperature

2018 growing season (cont.)

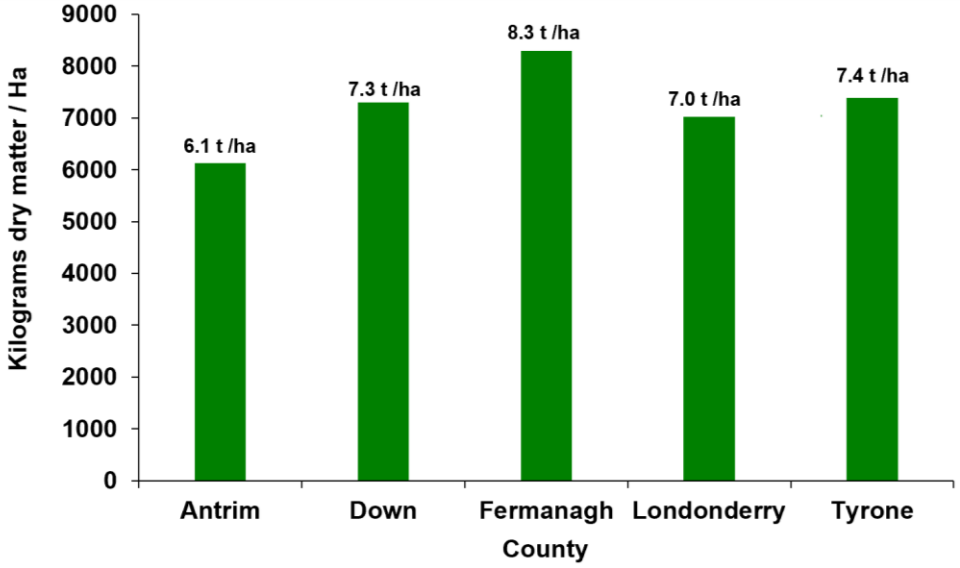


Fig. 6: Total grass dry matter grown to date per county

Table 1: Grass quality in 2018

	DM (%)	ME (MJ/kg DM)	CP (%)	ADF (%)	WSC (%)
10 year average	18.1	11.8	20.0	26.1	15.0
2018 Plots	20.1	11.6	18.3	27.2	14.8
2018 Dairy	20.0	11.6	19.0	27.5	14.1
2018 Beef	20.2	11.3	17.5	29.2	13.9

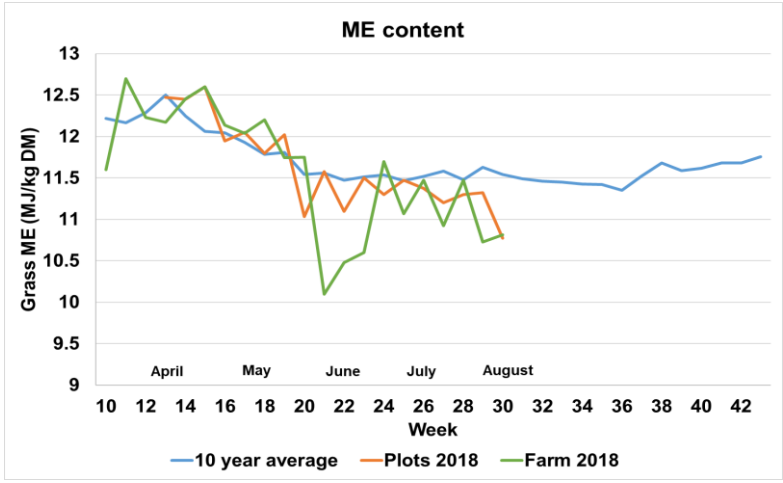


Fig. 7: Metabolisable content of grass in 2018

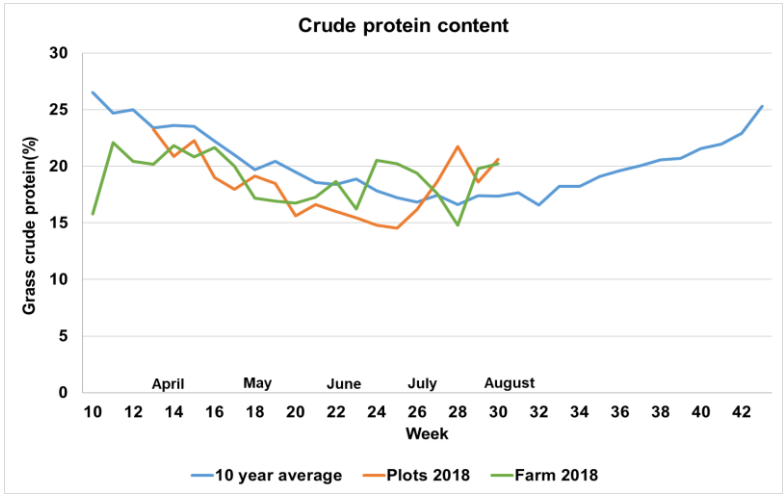
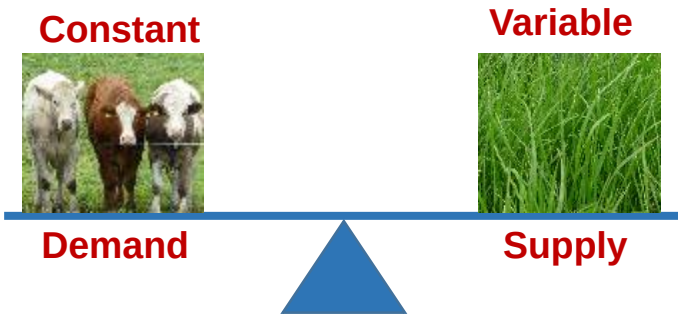


Fig. 8: Crude protein content of grass in 2018

Getting the balance

Paddock grazing



Post-grazing
1600 - 1800
kg DM/ha

Pre-grazing
3000 - 3300
kg DM/ha

Remove
>3500 kg
DM/ha

Golden rule = 3 leaves, 3 days, 3 weeks

Achieving target pre- and post-grazing residuals key to:

- Higher intakes of good quality pasture
- Increase animal performance
- Reduction in herbage wastage
- Higher quality re-growths
- Improved response to N fertiliser

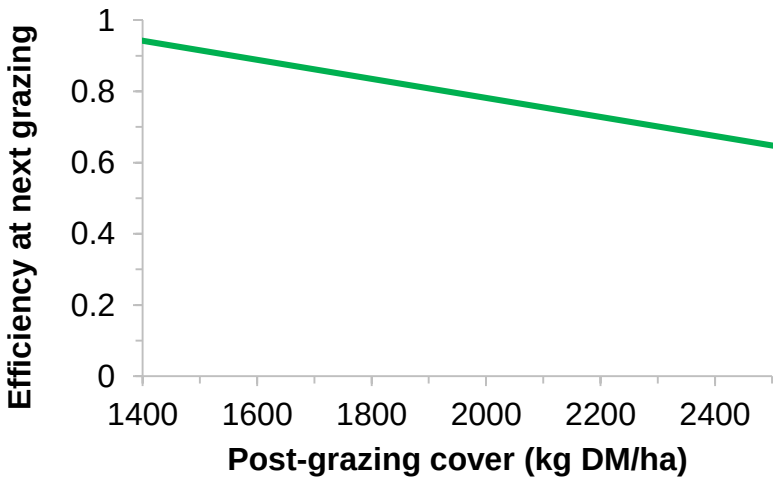


Fig. 9: Grazing efficiency relative to post-grazing cover

GrassCheck grazing block

- 93 acre block (37.6 ha)
- 23 fields – larger fields split
- 2 day grazing paddocks
- Blanket spread fertiliser – monthly
- Soil sampled and correct for P, K and S
- Matches grass growth with feed demand
- Livestock turned out:
  - 20th Feb – 77 bucket reared calves (190 kg LWT)
  - 20th Mar – 19 cattle (390 kg LWT)
  - 18th Apr – 77 small beef cattle (438 kg LWT)
  - 95 big beef cattle (540 kg LWT)
  - 7th May – 44 heifers (450 kg LWT)
- Cattle removed as grass supply decreased in early summer
- Cattle returned as grass supply increased following drought

Fig. 10: Farm map

Matching grass supply to demand

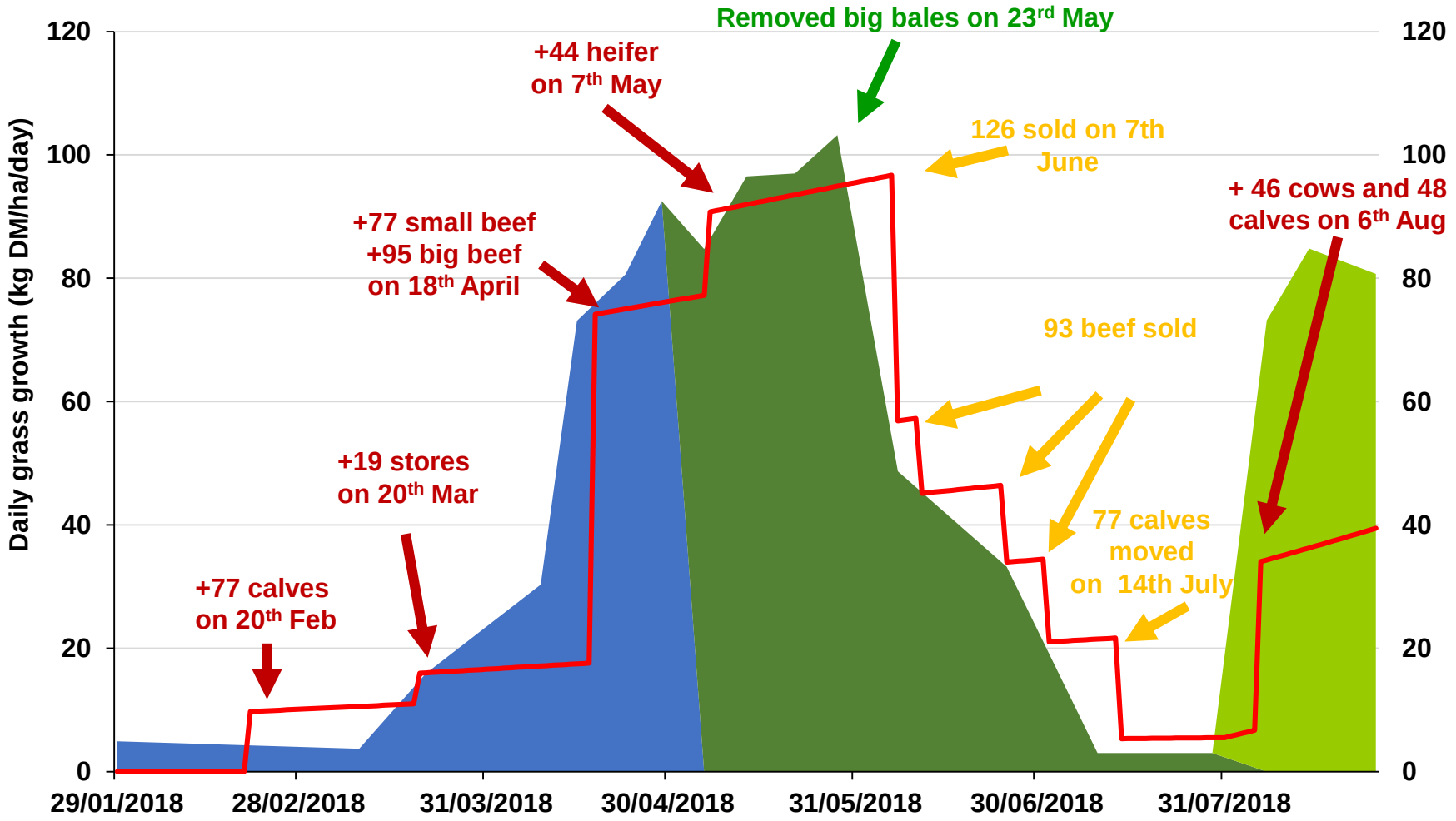


Fig. 11: 2018 grass growth curve and animal demand

Grass production – GC grazing block

Grazing management:

- Managed in a rotational paddock system
- Grazing blocks measured weekly

2018:

- Spring turnout = 20th February 2018
- Exception growth in late April and early May
  - Peak growth 103 kg DM/ha/d at end of May (removed big bales)
- No growth in July – due to drought
- Pre-grazing covers = 2850 kg DM/ha
- Post-grazing covers = 1,500 kg DM/ha
- Reseeding old and under-performing swards

Current growth rate = 80.7 kg DM/ha/day

Average farm cover = 3121 kg DM/ha

Total grown to date = 8.5 t DM/ha

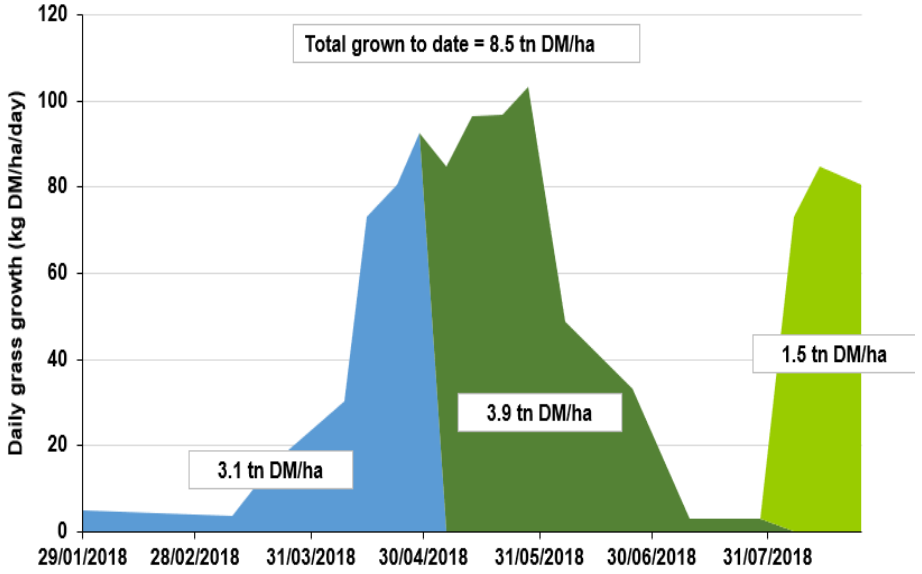


Fig. 12: 2018 grass growth curve

Examples of grass budgeting

Batch 1 – ideal wedge:
36 growing cattle @ 460 kg LW
Area = 7.04 ha
Current growth rate = 51 kg DM/ha/day
Grass allocation = 10 kg DM/head/day
Current demand = **360** kg DM/day
Grass supply = **359** kg DM/day

Batch 2 – deficit wedge:
40 growing cattle @ 520 kg LW
Area = 5.76 ha
Current growth rate = 51 kg DM/ha/day
Grass allocation = 10.5 kg DM/head/day
Current demand = **420** kg DM/day
Grass supply = **294** kg DM/day

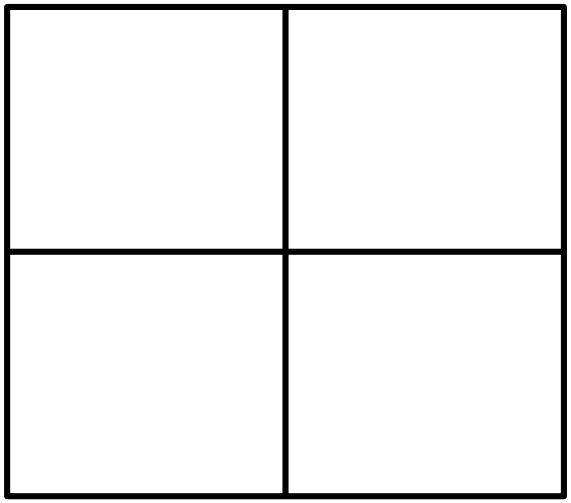
Options:
1) Remove 12 cattle from group
2) Introduction an additional 2.5 ha

Fig. 13: Grass wedge

Setting up a paddock system

Layout

- Use farm map – consider layout options
  - Look for positives and negatives
- Decide number of paddocks required for grazing stock
- Determine a suitable road way layout
- Determine most suitable drinking trough locations
- Access points (on driest ground)
- Square / rectangle shape



Size:

- Establish animal numbers or field size

Assume dry matter intake per animal = 2 - 2.5% body weight

Cows and calves

- 20 Spring cows and calves = 17 kg DM/day = **340 kg DM/day**
- 3 days grazing x 340 kg DM = **1,020 kg DM (demand)**

Pre-graze **Post-graze**

- 3,000 kg DM/ha **minus** 1,600 kg DM/ha = **1,400 kg DM/ha (available)**

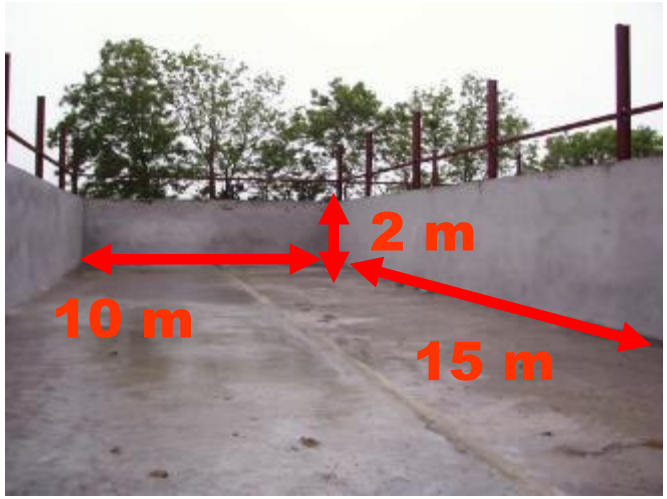
- 1,400 kg DM/ha **divided by** 1,020 kg DM = **0.73 ha (area required)**

Issues this winter

- Silage shortage in some areas
- Expensive feed
- Expensive straw
- Some very dry silages

Crop	Single Dry Matter Content (%)	Conversion (volume in m^3 to tonnes of fresh silage)
Grass Silage:	18	Multiply by 0.81
	20	Multiply by 0.77
	25	Multiply by 0.68
	30	Multiply by 0.60
Whole-crop	40	Multiply by 0.67
Forage Maize	30	Multiply by 0.75

Measure the silo



Silage in store

- 10m x 15m x 2m = 300m^3
- 25% dry matter silage so use 0.68
- 300 x 0.68 = **204t**
- Add on any round bales 650-850kg
- 80 bales = **60t**

Silage requirements

Type of stock to be fed	Silage /animal/ day (kg)
SUCKLER COWS	
Autumn/Spring calving	40 / 33
OTHER CATTLE	
350kg+	33
250 to 350kg	26
200 to 250kg	23
calves	10

Daily requirements will vary considerably with dry matter content of silage.

Complete a fodder budget

- 30 cows x 180 days = 180 t
- 30 calves x 180 days = 140t
- Deficit of **56t**

Steps to be taken

- Start planning NOW
- Analyse silage in store
- Manage the face carefully when silage is very dry
- PD & sell empty cows
- Use body condition if possible
- Sell/finish stores earlier
- Shorten the winter by using extended grazing techniques
- Ensure purchased feeds are value for money using the CAFRE relative feed value calculator

Budgeting for winter at Struell farm

Requirement

Cattle Type	Number of cattle	Av. winter live weight (kg)	Daily allocation (% live weight)	Daily req (kg DM /head)	Total daily req (kg)	120 Day winter	150 Day winter
Suckler cows	154	680	2 %	13.6	2094	251	314
Suckler weanlings	185	410	2.5 %	10.25	1896	228	284
Dairy-origin	109	430	2.5 %	10.75	1172	141	176
				TOTAL	**5162 kg**	**619.5 t DM**	**774 t DM**

Available	Quantity (tonnes of DM)
Poor quality silage	111
Good quality silage	176
Wholecrop	150
Rape (40 acres predicted @ 2 t DM/acre)	80
TOTAL	**517 t DM**

SUMMARY

120 day winter requirement = 619.5 t DM
Currently available = 517t DM

Overall deficient =102.5 t DM

BUT additional silage will be made Sept 18

Estimating the amount of fodder available

Silo No	Silage DM (%)	Clamp Dimensions (m)			Clamp Vol. (m^3) V=LxWxH	Conversion Factor (M) from table below	Weight of fresh silage (tonnes) = VxM	Total silage dry matter (tonnes)
		Length (L)	Width (W)	Height (H)				tonnes fresh x dry matter
1								
2								
3								
							TOTAL (T1)	

Additional forage:

_____ bales @ _____ kg/bale and ____% dry matter = + ____ tonnes dry matter

Conversation factor

Crop	Single Dry Matter Content (%)	Conversion (volume in m^3 to tonnes of fresh silage)
Grass Silage:	18	**Multiply by 0.81**
	20	**Multiply by 0.77**
	25	**Multiply by 0.68**
	30	**Multiply by 0.60**
Whole-crop	40	**Multiply by 0.67**
Forage Maize	**30**	**Multiply by 0.75**

TOTAL FODDER REQUIRED ON THE FARM FRESH WEIGHT BASIS (25% DM)

Type of stock to be fed	Number of animals (N) a	Silage fresh intake kg/head/day (DM) b	Silage required/animal/ month (DM tonnes) c (bx30.5)	Silage dry matter required (tonnes/month) = a x c
SUCKLER COWS				
Autumn				
Spring				
GROWING CATTLE				
Calves				
200 - 250 kg				
250 – 300 kg				
350 kg +				
			TOTAL (T2)	
Total silage available (tonnes)		**(T1)**		
Total silage required /month (tonnes)		**(T2)**		
Months silage		**(T1 ÷T2) -**		

NOTES

www.agrisearch.org/grasscheck

For further information on the GrassCheck suite of projects visit:

GrassCheck is supported by: