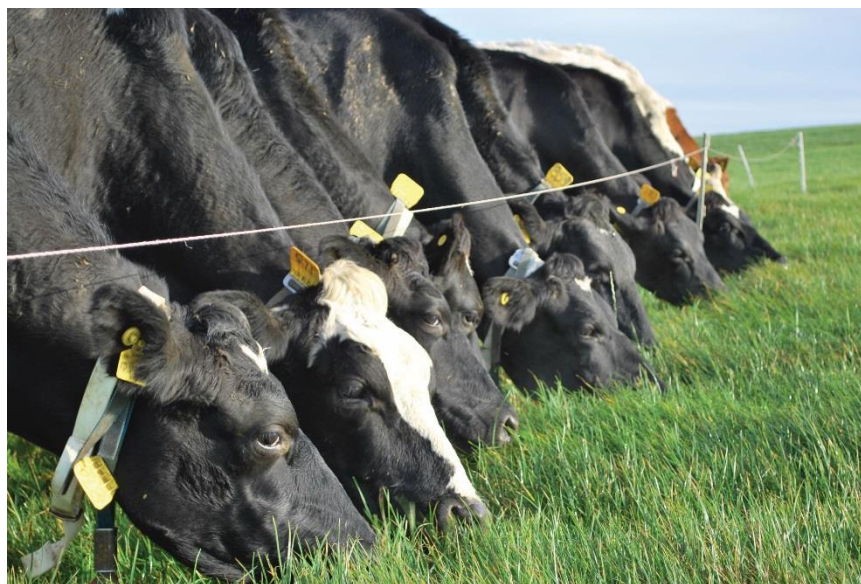


GrassCheck Farm Walk

Joe Cush

Pomeroy, County Tyrone



Thursday 25 April 2019

GrassCheck is supported by:

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

Paddock Card – McNally's Paddocks

- 3 grazings during Spring 2018
- **Reseeded 31 May 2018:**
 - 8kg/ac Aberchoice (Late Diploid)
 - 5kg/ac Abergain (Late Tetraploid)
 - 1kg/ac Timothy
- Grazed 11 July 2018 (40 days later)
- Grazed a further 5 times during 2018

Total 2018 grass
production:

10.6t DM/ha

Joe Cush – Farm details

Stock numbers:

- 70 Holstein-Friesian cows
- 26 maiden heifers
- 20 Aberdeen Angus year olds
- 18 Holstein-Friesian heifer calves

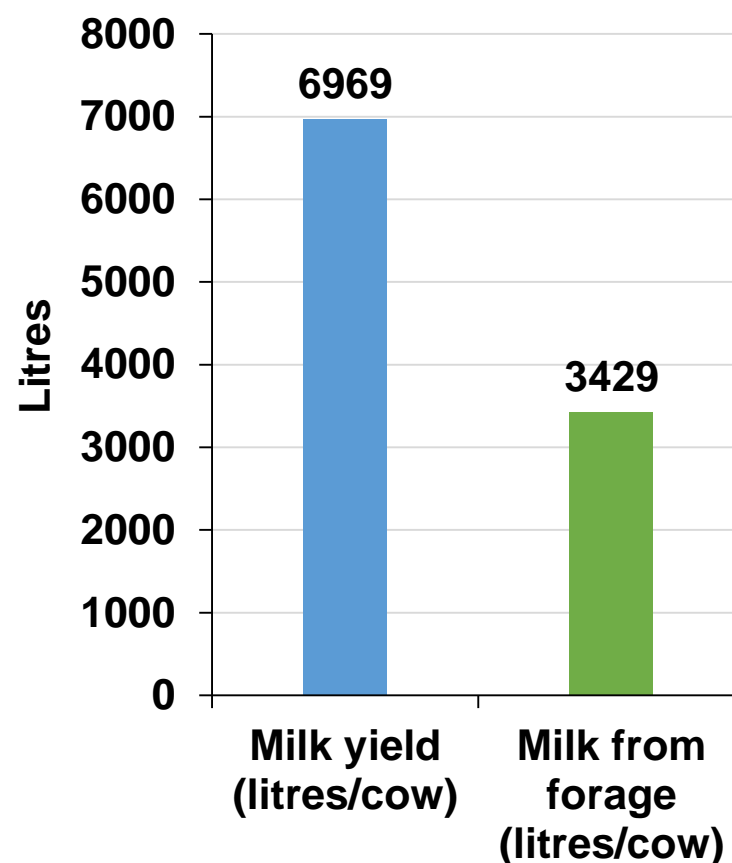
Land area:

- 60 Ha grassland (SDA)
- 20 Ha in grazing platform



Joe's farm – Rolling herd performance

- Concentrate fed = 1.5 t/cow/year
- Strong focus on Spring grazing with cows turned out:
 - Mid Feb – on/off grazing
 - Full time – since 6th April
- Milk quality:
 - 3.75% butter fat
 - 3.37% protein



Farm aim: maximising profit per cow through use of grass

2018 growing season – Plots and dairy farms

Plots:

- 10.8t DM/ha grown
- Delayed initiation of growth by 3 week
- Summer yield ↓ 1.2t DM/ha
- Strong recovery in September

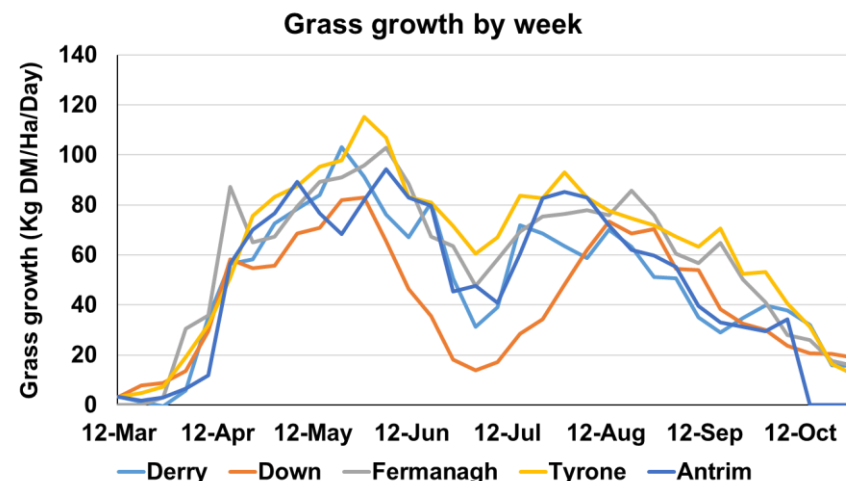


Fig 1: 2018 Grass growth curve across GC dairy farm

Dairy farms:

- Average growth on dairy farms = 11.7t DM/ha
- Lower production in early spring
- County Down significantly impacted in June and July

	Total growth (kg DM/ha)
Antrim	11,922
Derry	12,183
Down	10,536
Fermanagh	12,264
Tyrone	12,816

Grass quality in 2018

- Significantly higher grass quality in 2018 vs. 2017
- Increase in dry matter content (+2.9%)
- Significant differences across region and month

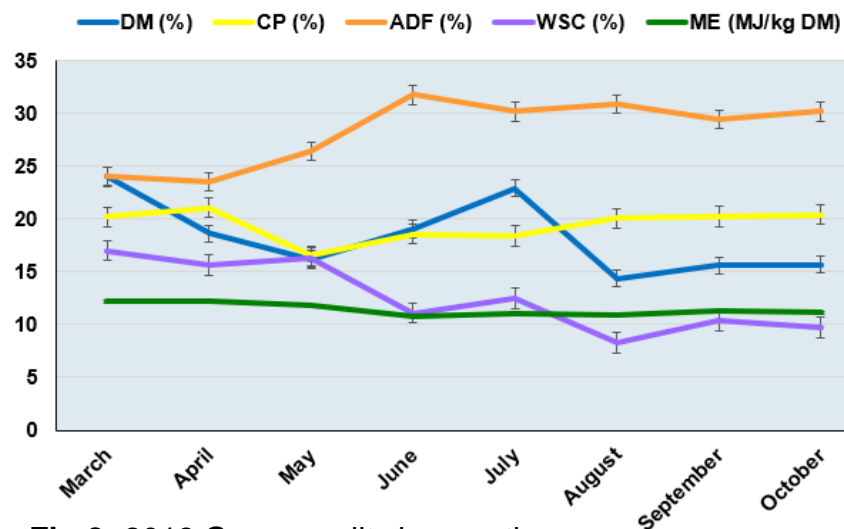


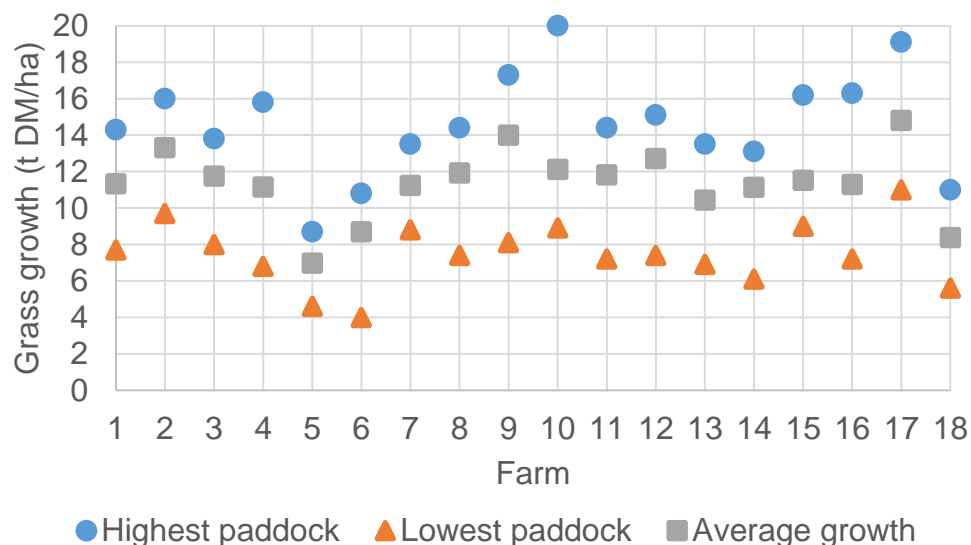
Fig 2: 2018 Grass quality by month

Table 1: On-farm grass quality by county

	Antrim	Derry	Down	Fermanagh	Tyrone
DM (%)	16.8	18.0	20.3	17.0	17.2
CP (%)	19.7	20.7	19.4	17.6	19.8
WSC (%)	11.6	12.5	12.9	12.3	11.9
ME (MJ/kg DM)	11.2	11.6	11.5	11.1	11.4

Grass growth on NI farms

Average, highest and lowest growth fields for GrassCheck dairy farms during 2018



Variation between highest and lowest growth paddocks = **7.2t DM/ha**



Feed value lost = £974/ha



Grass measurement key to identifying poor performing areas

Causes of variation between paddocks:



Soil management

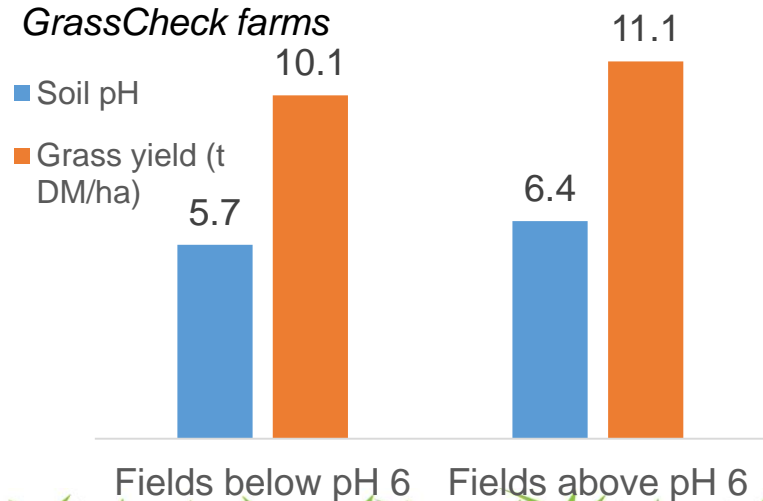
43% of NI grassland soils currently require lime (GrassCheck dairy farms = 16%)

Soil pH decreases over time. Fall in pH is quicker:

- in high rainfall areas
- high N fertiliser rates:

To neutralise CAN @ 250kg N/ha = 0.5t lime

Average grass yield during 2017 and 2018 from low and high pH soils on the GrassCheck farms



Sward management

Over time perennial ryegrass content decreases in swards, leading to:

- Reduced yield and quality
- Increased weed burden
- Reduces N response to fertiliser

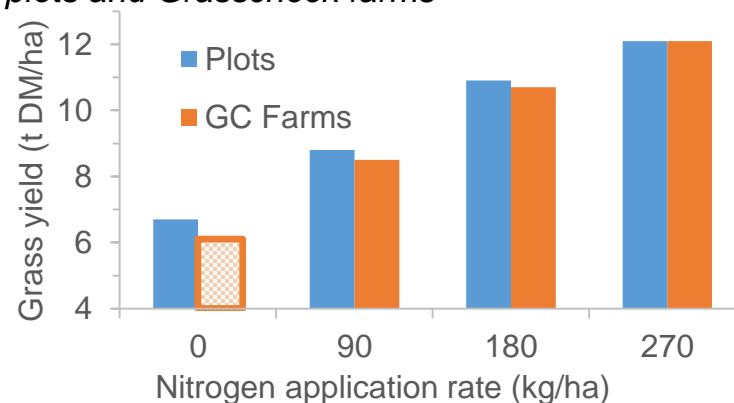
Perennial ryegrass (PRG) contributions to grass swards over time

Age	PRG content (%)	Yield (t DM/ha)	Grass ME (MJ/kg DM)	Feed value lost (£)
1	95	13.5	12.0	
3	90	12.6	11.8	197
5	80	11.2	11.5	491
7	70	9.8	11.3	759
9	60	8.4	11.0	1030
11	50	7.0	10.8	1279

Grazing swards – fertiliser management

- Plot and farm data show cost effective response to N throughout season at high fertiliser application rates
- 1kg N fertiliser @ £0.8/kg delivers:
21kg DM grass @ £0.136/kg = £2.86
Return on Investment = **3.6:1**

Grass response to varying N application rates on plots and Grasscheck farms



RB209 Nitrogen fertiliser applications for swards growing 12+ t DM/ha

	Feb	Mar	Apr	May	June	Jul	Aug	Total
kg/ha	30*	40	50	50	40	30	30	270
units/ac	24	32	40	40	32	24	24	216

**If early spring grazing*

Phosphate

- Index 2- soil = 20kg/ha (16 units/ac)
- Spring application

Potash

- 40% swards deficient
- Index 1= 30kg/ha (24un/ac)
- Autumn application

Sulphur

- Widespread deficiency
- 75 kg/ha (60 units/ac)
- Spring/summer application

Grass production – Joe's farm

Soil fertility

All soils tested through AFBI programme Feb 2018:

- 89.8% platform at/above target pH
- 100% of platform at/above target P
- 64.4% of platform at/above target K

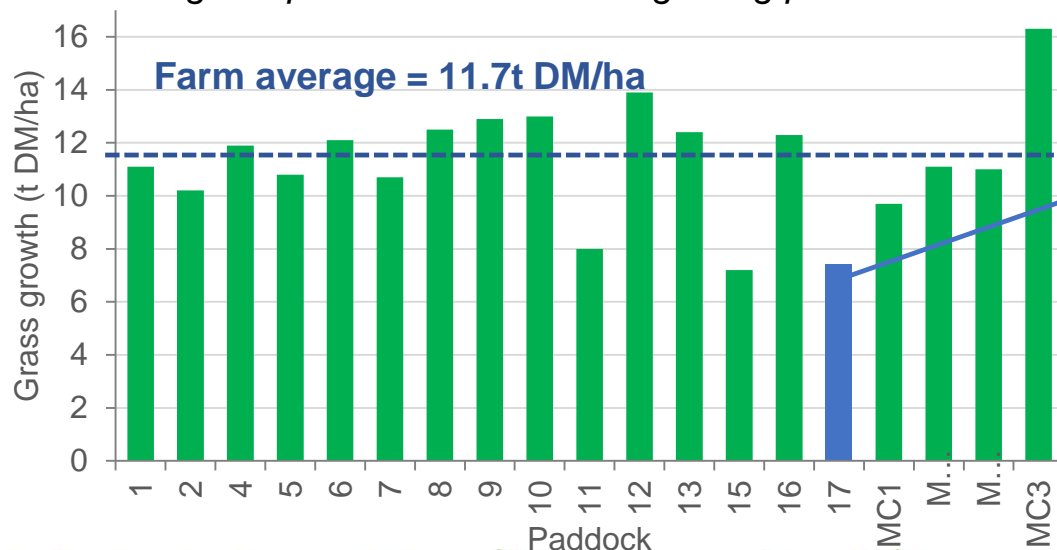
2019 fertiliser management to date:

- 19 Feb – 29kg/ha (23 units/ac) urea
- April – 31kg /ha (25 units/ac) 25-0-5

Grass performance

Weekly measurement used to identify under performing paddocks

2018 total grass production across the grazing platform



Paddock 17:

- Reduced performance 2018 - 7.4t DM/ha
- Reseeded 7th August 2018 – spray off and full plough reseed
- Mix – 9kg AberGreen, 4kg AberGain, 1kg Timothy

Joe's farm - Grass production

- Total growth 2018 = **11.7t** DM/Ha
- Total grown to date = **1.2t** DM/Ha
(14th Feb – 20th Apr)
- Current growth rate = 25 kg DM/Ha/Day
- Average farm cover = 2067 kg DM/Ha

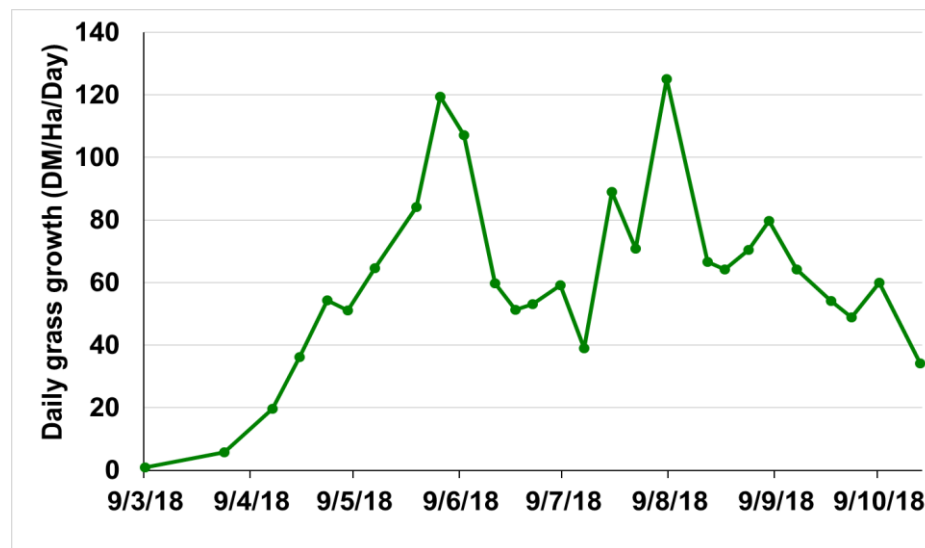


Fig 3: 2018 Grass growth curve

Managing grass on Cush's farm:

- Target 2800 - 3000 kg DM/ha pre-graze covers

Surplus's

- Take out bales
- Pre-mow high covers in mid-Summer

Deficit's

- Bring in silage
- On/Off grazing



Seasonal management - Joe's farm

Early Season:

- Soft ground condition – Judge turnout year to year (On/Off grazing)
- Aim to get fertiliser applied in early Feb

Mid-Season:

- Key to graze out to as close as possible to 1500 kg DM/Ha target
- Weekly grass measuring essential
- Make informed decisions from data recorded on AgriNet (Fertiliser/Reseeding)

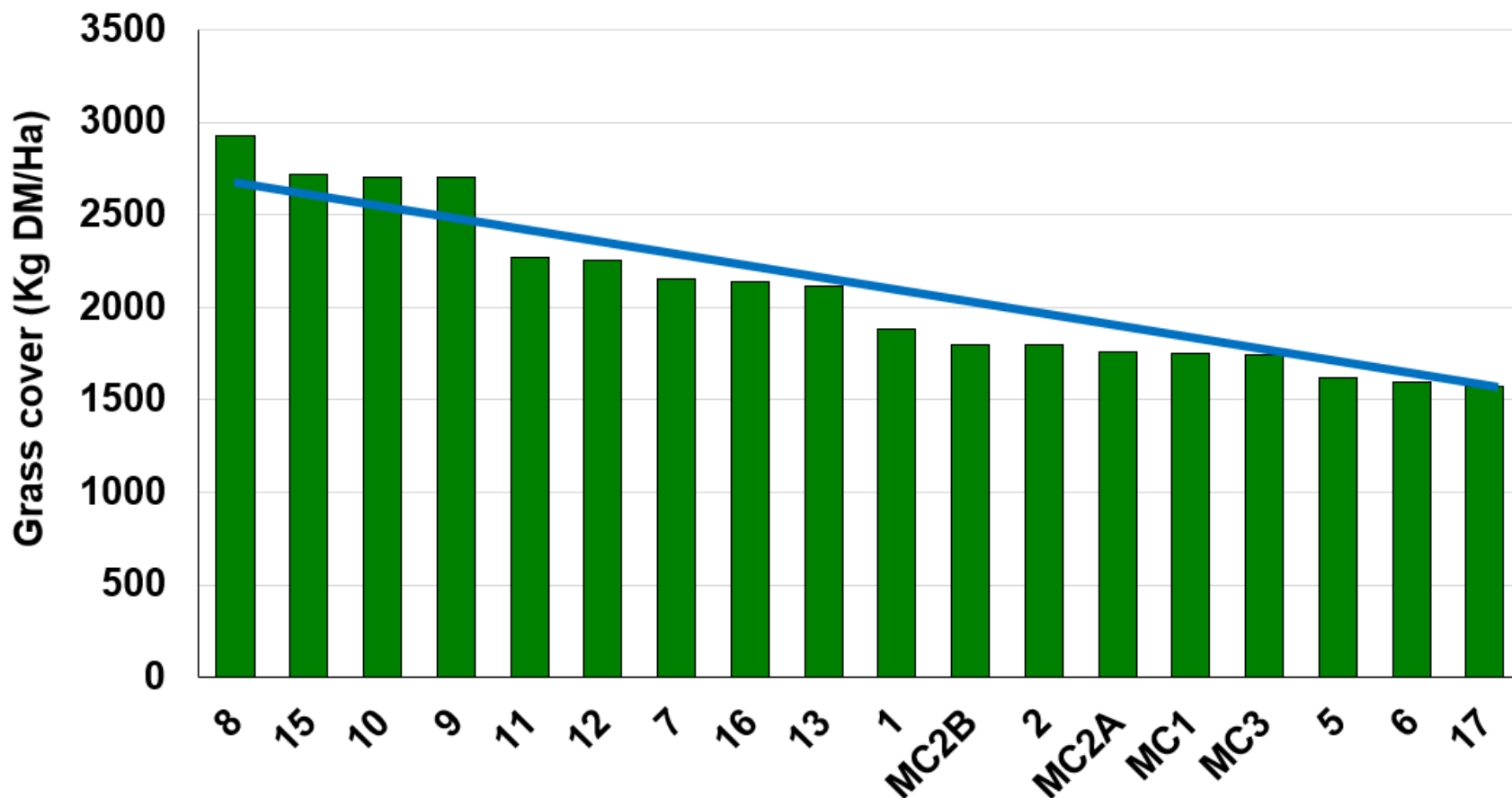
Late Season:

- Try extend the grazing rotation and build up covers
- Remove cull cows not needed in system
- Feed silage at night, if needed to build covers

Each season has it own opportunities /challenges



Current grass wedge (20-4-19)



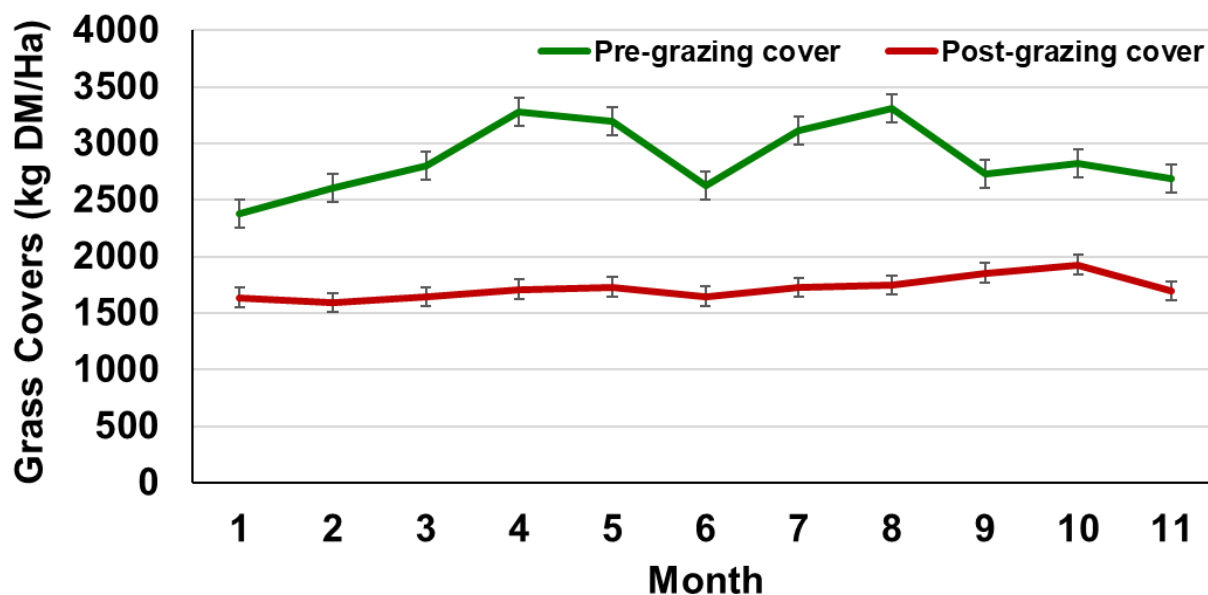
On-farm grazing efficiency

Achieving target residuals key to:

- Higher intakes of good quality pasture
- Reduction in herbage wastage
- Higher quality re-growths
- Shorter re-growth interval
- Improved response to N fertiliser

Table 2: Grazing efficiency on-farm

	2017	2018
Average pre-grazing cover (kg DM/ha)	3074	3007
Average post-grazing cover (kg DM/ha)	1674	1717
Average utilisation (%)	0.85	0.86



Achieving target residuals key to increasing grazing efficiency

Fig 4: GrassCheck dairy farms pre- and post-grazing covers in 2018

Pasture allocation frequency: 12, 24 or 36hr?

- NI dairy herds typically graze as one mob with a range of parities, cow energy requirements, high competition
- Can heifer performance be improved with lower allocation frequencies?

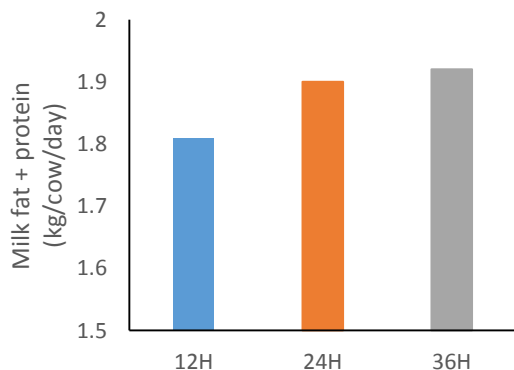
Experiment:

- 90 spring calving dairy cows (27 heifers)
- Two grazing periods: May – July, August - September
- Grass allocation = 15kg DM/cow/day

72 Hour Grazing Block

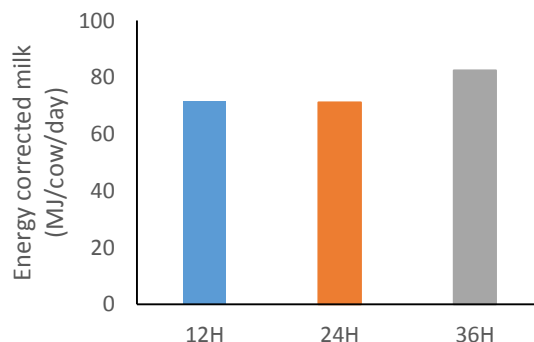


Impact of frequency of pasture allocation on milk fat plus protein yield



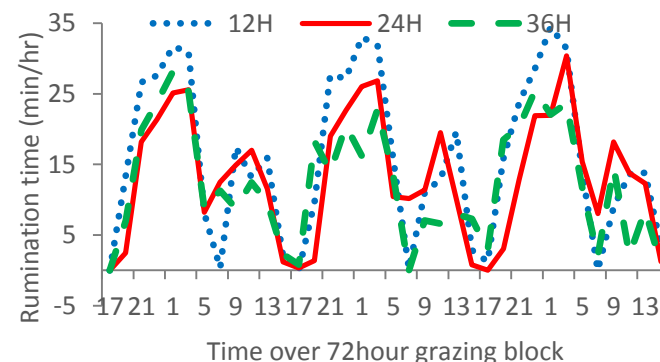
Lowest milk fat plus protein yield from 12H pasture allocation

Impact of frequency of pasture allocation on ECM of heifers



Highest heifer ECM yield from 36H pasture allocation

Impact of frequency of pasture allocation on rumination behaviour of heifers



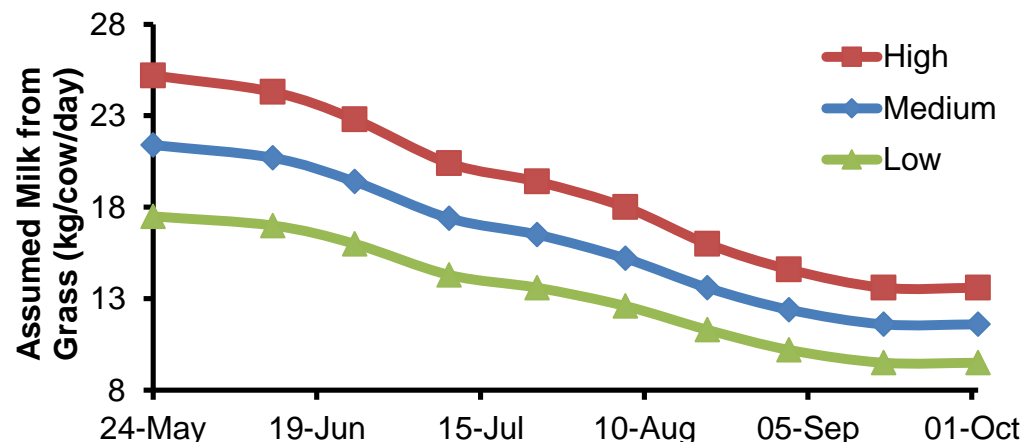
Increased energy expenditure with 12H heifers for both rumination and grazing

Value of grass: Optimum M+

- Well-managed grazed grass remains high quality feedstuff throughout season
- What are optimum M+ values for dairy cows?

Experiment:

- 57 spring calving cows (DIM: 157, MY: 32kg/cow)
- 3 M+ treatments



Medium M+ value = good balance between reducing feed cost and maintaining cow performance.

Assuming High M+ values will return highest MOC but resulted in thinner, lighter cows

	High	Medium	Low
Concentrate intake (kg/cow/d)	1.8	3.2	4.9
Milk Yield (kg/cow/d)	19.0	21.8	23.8
Milk F+P yield (kg/cow/d)	1.51	1.70	1.84
Liveweight (kg/cow)	547	556	579
Margin over feed costs (£/cow/d)	5.02	4.92	4.54

Joe's farm - Grazing management

- All cows grazed as one group
- Fed to yield in parlour
- Dealing with heavy soils:
 - flexible rotation - graze wetter paddocks when possible
 - focus on residuals from second rotation onwards

2018 grazing season performance

No. of grazings per paddock	9.8
Pre-grazing cover (kg DM/ha)	2806
Post-grazing cover (kg DM/ha)	1703
Utilisation rate (%)	84.5

2019 grazing season

- Mid-February – 2 April:
 - Grazings achieved = 27
 - Total silage saved = 45 tonne
 - Concentrate saved = 2kg/cow/day
 - Milk yield = +1.5 litres/cow/day
 - Milk protein = +0.2%/cow
- Turnout full time: 5 April 2019

Current performance:

- Milk yield: 30 litres/cow/day
- Milk fat: 3.82%
- Milk protein: 3.46%
- Concentrate: 4kg/cow/day
- Grass intake: 14kg/cow/day

www.agrisearch.org/grasscheck

For further information on the
GrassCheck suite of projects visit:

GrassCheck is supported by:

