GrassCheck Farm Walk

Henry Stewart

Stewartstown, Co. Tyrone

Thursday 16th August 2018

GrassCheck is supported by:

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

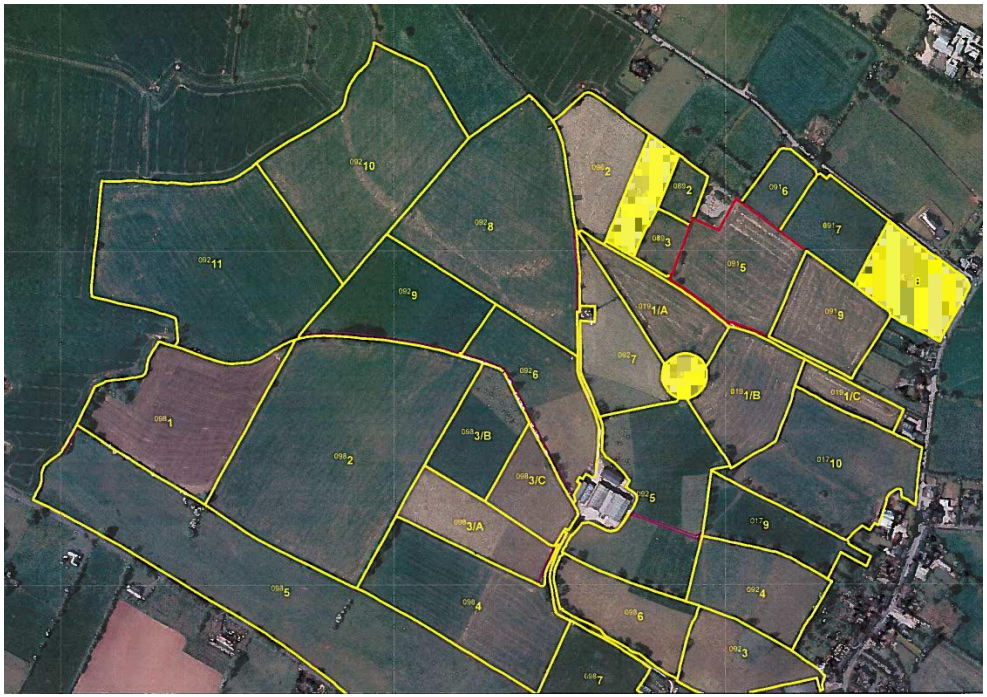
The Research Challenge Fund

CIEL Centre for Innovation Excellence in Livestock

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

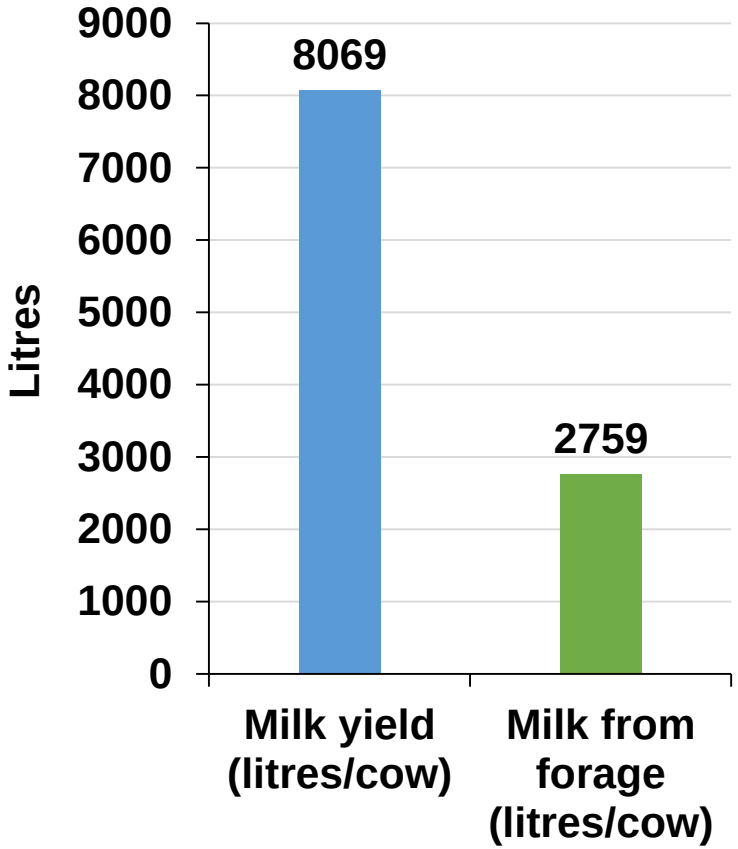
Henry Stewart – Farm details

- 220 Holstein cows:
  - 110 autumn calving
  - 110 spring calving
- 140 followers
- 280 acres grassland
- 2018 – 13 acres wholecrop harvested



Henry Stewart – Rolling herd performance

- Concentrate fed = 2.65t/cow/yr
- Feed to yield – in-parlour and OOPF, limited use of diet feeder
- Milk quality:
  - 4.18% butter fat
  - 3.34% protein



FARM AIM - Simplicity and profitability

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

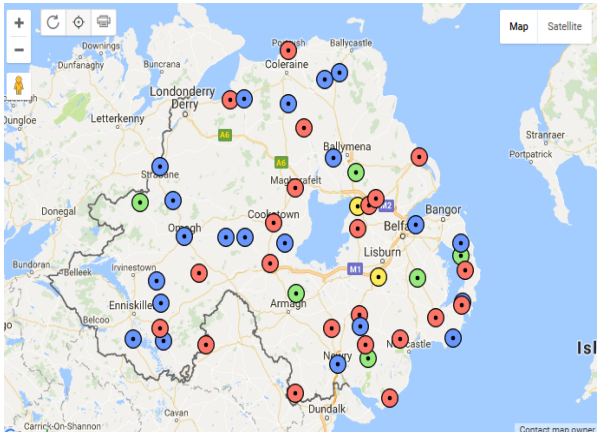


Fig. 1: GrassCheck farm network

Grass growth

Grass quality

Weather data

http://www.agrisearch.org/grasscheck

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

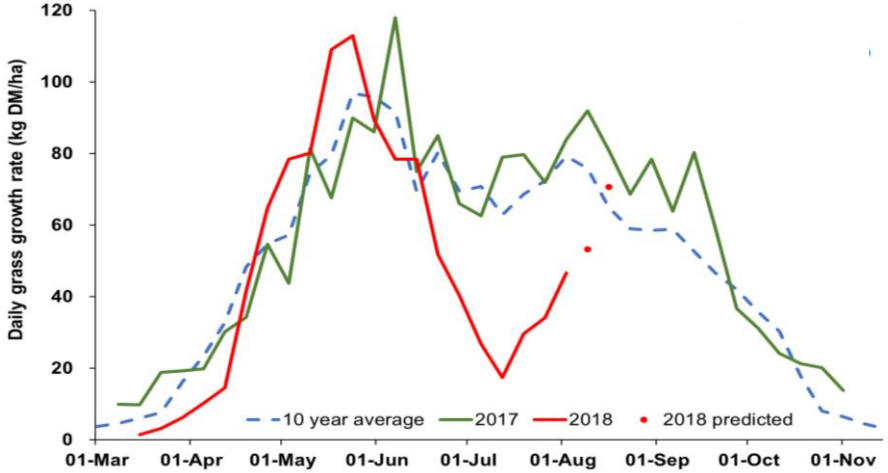


Fig. 2: Grass growth curve

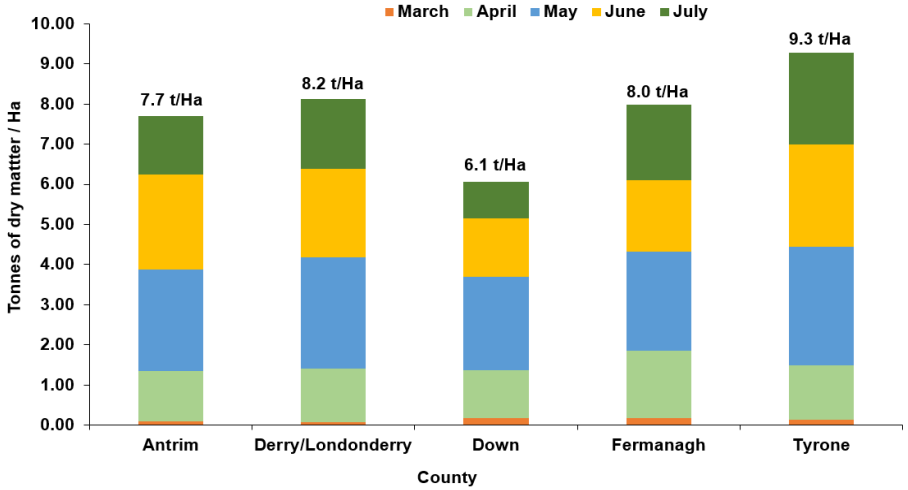


Fig. 3: Total grass grown to date across counties

On-farm grazing efficiency

Achieving target pre- and post-grazing 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 1: Grazing efficiency on-farm

	Target	Group average	% grazings on target
Pre-grazing cover (kg DM/ha)	3000 - 3300	3074	72.4
Post-grazing cover (kg DM/ha)	1500 – 1800	1674	67.9
Grazing efficiency (used/available; %)	>75	85	76

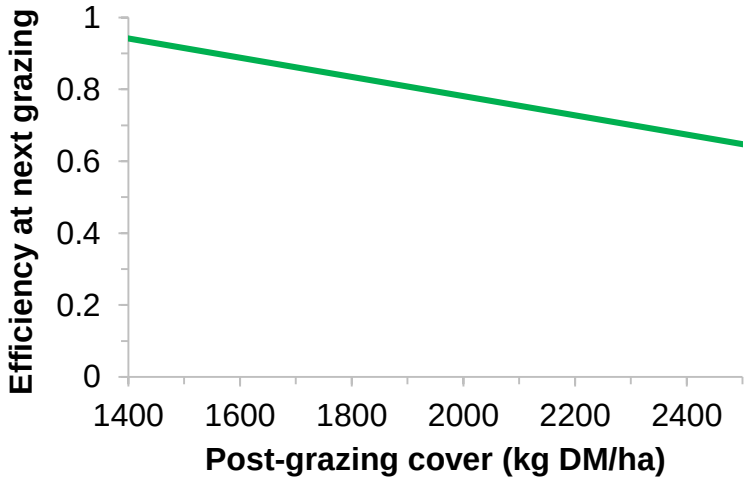


Fig. 4: Grazing efficiency relative to post-grazing cover

Achieving target pre- and post-grazing residuals key to increasing grazing efficiency

Grass production on farm

Current growth rate = 62 kg DM/Ha/Day

Average farm cover = 2697 kg DM/Ha

Total grown to date = 5.5 t DM/Ha
(total growth 2017 = 10.7 t DM/Ha)

Managing grass on Henry's farm:
Target 3100 kg DM/Ha pre-graze covers

Surplus's

- Take out bales
- Pre-mowing cover in excess of 3,500 kg DM/Ha

Deficit's

- Bring in silage ground to grazing platform

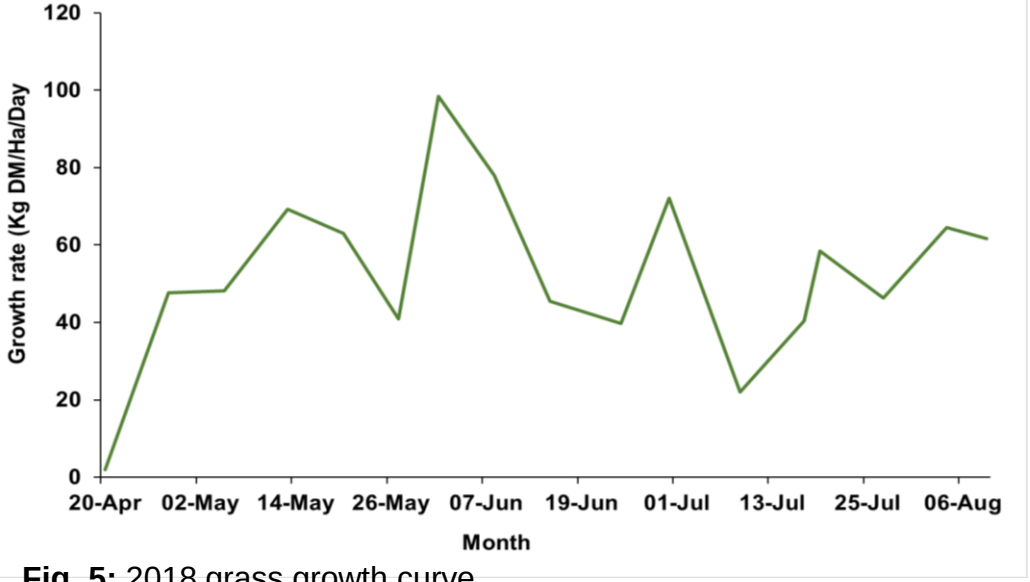


Fig. 5: 2018 grass growth curve

Table 2: Grass quality during 2018

	Dry matter (%)	ME (MJ/kg DM)	Crude protein (%)	Acid detergent fibre (%)	Water soluble carbohydrates (%)
Late Spring	23.9	12.1	22.7	24.6	12.9
Early Summer	18.8	11.2	19.0	29.9	14.2
Mid-Summer	20.9	10.7	19.2	32.9	9.0
Average	21.2	11.3	20.3	29.1	12.0

Role of artificial grass

Good laneway surface essential for cow flow, minimising lameness and reducing walking times

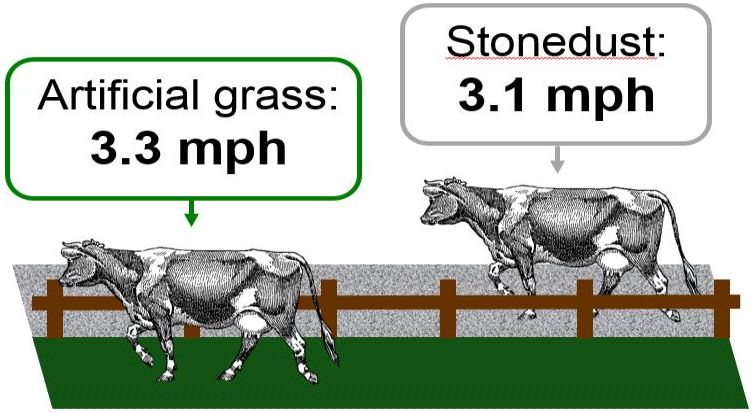
1: Preference trials

- 132 dairy cows
- 4 x 25m stretches of stoned laneway vs artificial grass

- Cows selected artificial grass **75%** of the time
- Preference for artificial grass higher with lame cows

2: Walking speed

- Stonedust vs artificial grass
- 31 pairs of dairy cows
- Measured 3 times post morning milking



Artificial grass improves cow flow and comfort

Comparable costs (Dust = £1.20/m^2, Artifical grass = £1.25/m^2)

Lameness/Durability?

Autumn grass – what to expect

Growth rates

- Steady decline in growth rates
  - August = 68kg DM/ha
  - September = 50kg DM/ha
  - October = 23kg DM/ha
- Typical growth – August – October

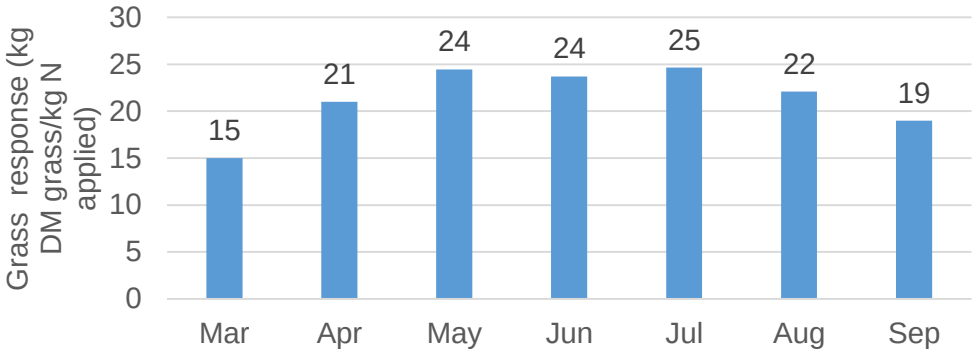
  = 4t DM/ha

Grass quality

- Well managed grass maintains quality during autumn period

BUT

- Restricted intake capacity due to falling grass DM content



Significant return on investment from N fertiliser throughout season: 11.6:1

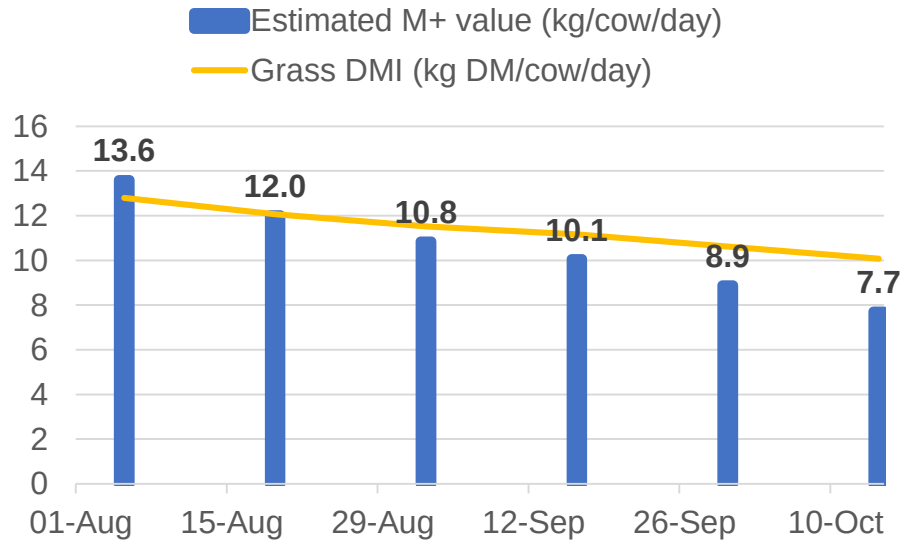
Table: Average GrassCheck grass quality as recorded in Spring, Summer and Autumn

	Spring	Summer	Autumn
Dry matter (%)	18.6	17.0	15.3
ME content (MJ/kg DM)	12.0	11.5	11.6
Crude protein (%)	22	17.6	21.6

Autumn grass – what is it worth?

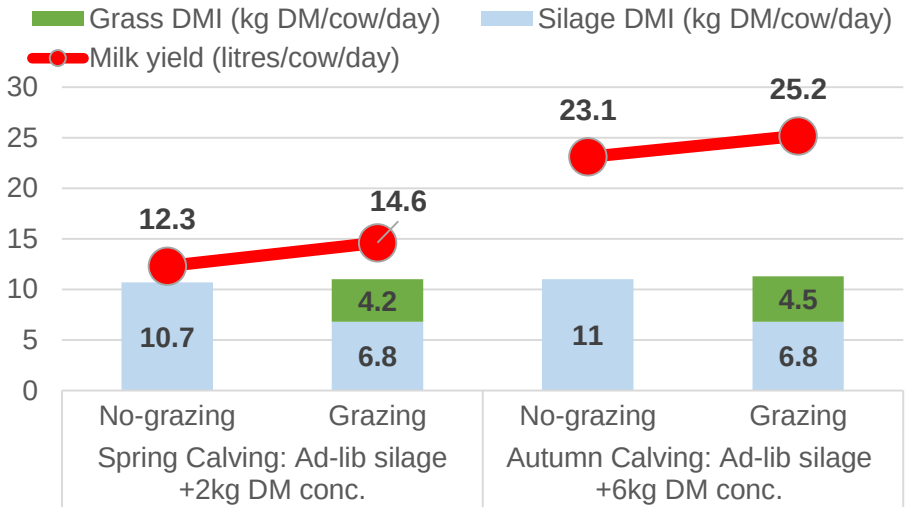
Full-time grazing

- Typical grass DMI of 10 – 13kg/cow/day
- Caution required with fresh calved cows



Part-time grazing

- Increase in milk yield + 2 litres/cow/day
- Opportunity to reduce silage requirement by 4kg DM/cow/day

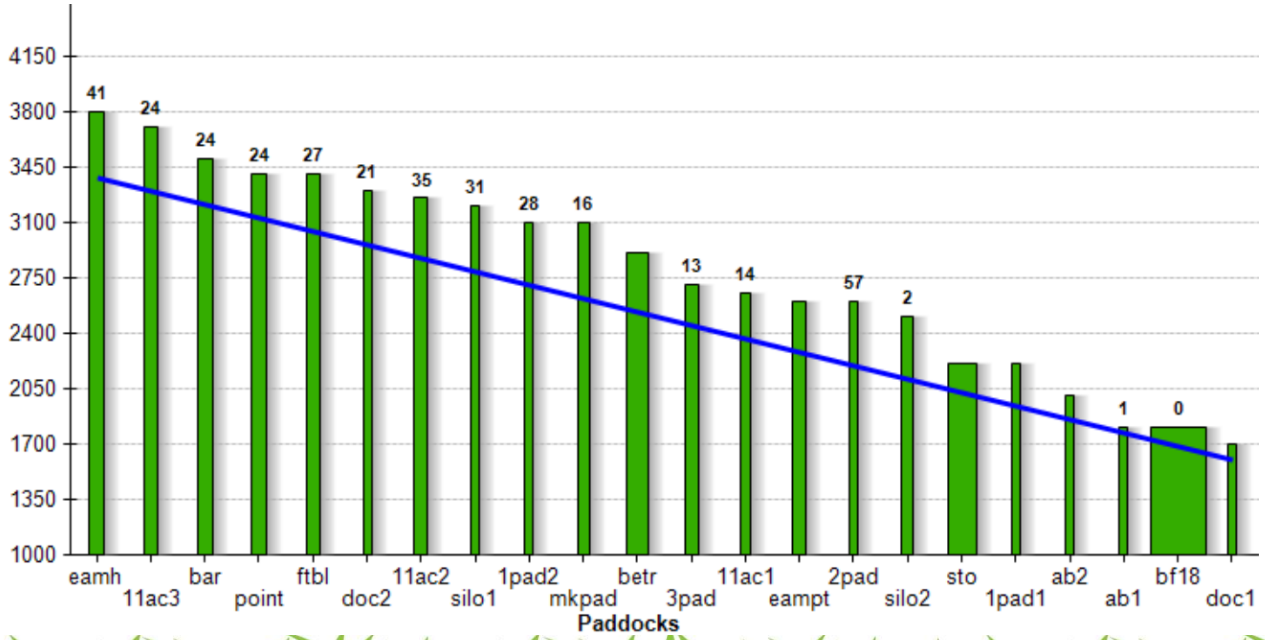


One week's additional grazing for 100 cows is worth £1085

Options for autumn grass

Current wedge:
Area = 38ha
Milking cows = 140
Dry cows = 33
Grass DMI = 15kg DM/cow/day

- Additional area required June + July to support herd demand
- Current growth rates building grass surplus – AFC 2697kg DM/ha (target 2350kg DM/ha)
- Dry off autumn herd – short term reduction in demand



Calculating grass supply and demand

Today

Grass demand:

140 milking cows	15kg DMI/day
33 dry cows	10kg DMI/day

= 2430kg DM/day

Grass supply:

Area	38.16 hectares
Growth rate	62kg DM/ day

= 2366 kg DM/day

Difference: -66kg DM/day

- Today demand>supply but high average farm cover (2697 vs 2350kg DM/ha target)
- No additional area required at present
- Dry off autumn herd – short term reduction in demand but likely to increase as cows calf down
- Potential need to increase area later in season to combat fall in growth rates

Estimating the amount of fodder available

Silo No	Silage DM (%)	Clamp Dimensions (m)			Clamp Vol. (m^3) V=LxWxH	Conversion Factor (M) from table	Weight of fresh silage (tonnes) = VxM	Total silage dry matter (tonnes)
		Length (L)	Width (W)	Height (H)				tonnes fresh x dry matter
1	30	30.5	11.7	3.15	1124 m^3	0.62	697	209
2	40	26	9.5	2.4	593m^3	0.59	350	140
							TOTAL (T1)	349 **

**Potential 3rd silage cut – 80 acres @ 5 tonnes silage FW/acre = 400 tonnes @ 25% dry matter = potentially 100 tonnes dry matter of silage extra

TOTAL FODDER DRY MATTER REQUIRED ON THE FARM

Type of stock to be fed	Number of animals (N)	Silage dry matter intake kg/head/day	Silage required/animal/ month (DM tonnes)	Silage dry matter required (tonnes/month)
DAIRY COWS				
- milking	**170**	**12**	**0.36**	**61.2**
- dry	**30**	**11**	**0.33**	**9.9**
Replacements				
heifers 1-2 years old	**50**	**8**	**0.24**	**12.0**
heifers 0-1 years	**50**	**6**	**0.18**	**9.0**
			TOTAL (T2)	**92.1**
Total silage available (tonnes) (T1)			**349**	
Total silage required /month (tonnes) (T2)			**92.1**	
Months silage (T1 ÷T2) -			**3.8**	

Add in approximately 100 T dry matter 3rd cut (100/92.1 = 1.1 months) = 4.9 months silage available

Plan & monitor feed efficiency

- **Fertilise grassland to provide nutrients for autumn grass growth**
- **Analyse fodder to determine its dry matter & production potential**
- **Assess forage stocks on the farm using CAFRE fodder stocks calculator**
- **Batch cows and target best quality silage to most productive stock**
- **Ensure silage replacer rations are good value for money – use CAFRE Relative Feed Value Calculator**
- **Start planning now for early turnout of stock in spring 2019**
- **Monitor feed efficiency using the CAFRE M.O.C. on-line calculator**
- **Consider CAFRE Benchmarking & completing cash flow monitor**
- **Review farm management to maximise use of grass/forage in the diet**

For further information on the GrassCheck suite of projects visit:

www.agrisearch.org/grasscheck

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