

An Roinn Talmhaíochta,  
Bia agus Mara  
Department of Agriculture,  
Food and the Marine

# Grassland Farmer of the Year 2017

## Sheep Winner

*Peadar Kearney's Farm, Nicolastown, Ardee, Co.Louth*

Friday 19<sup>th</sup> October 2018





# Kearney Farm Map





# Grass10 Campaign

Grazed grass is the cheapest and most widespread feed for livestock in Ireland. Grass enables low-cost animal production and promotes a sustainable, green, and high quality image of milk production across the world. Recent industry reports (Food Harvest 2020 and Food Wise 2025) have highlighted the important role grass can play in an expanding milk and meat production industry. Through a combination of climate and soil type, Ireland possesses the ability to grow large quantities of high quality grass and convert it through the grazing animals into high quality grass based milk and meat products.

Our competitive advantage in milk and meat production can be explained by the relative cost of grass, silage and concentrate feeds. Therefore, increased focus on grass production and efficient utilisation of that grass should be the main driver for expansion of the livestock sector. An analysis of drystock farms completing both grassland measurement in PastureBase Ireland and a Profit Monitor demonstrated increased profit of €105/ha for every 1 tonne DM/ha increase in grass utilised. It should be noted that issues such as environmental sustainability (carbon footprint, nutrient use efficiency, etc.) are also improved by increased grass utilisation.

Future growth in the pasture based lamb production in Ireland will depend on an effective grass-based system. However, Irish farmers are not using grass to best effect and there is thus a need to (1) increase grass production and (2) ensure efficient utilisation of that grass.



## **Kearney Farm Overview**

The farm comprises of 27 Ha of which 16 Ha is located on an out farm and 10 Ha on the home block. Peadar operates a sheep only enterprise of 300 ewes producing lambs for the factory and replacement ewe lambs for sale. Replacements are kept on the farm. However ewe lambs are not mated. The running of the farm is greatly assisted by local farmer and Ag. Graduate Joanne Martin who has a keen interest in the breeding and performance recording taking place on the farm.

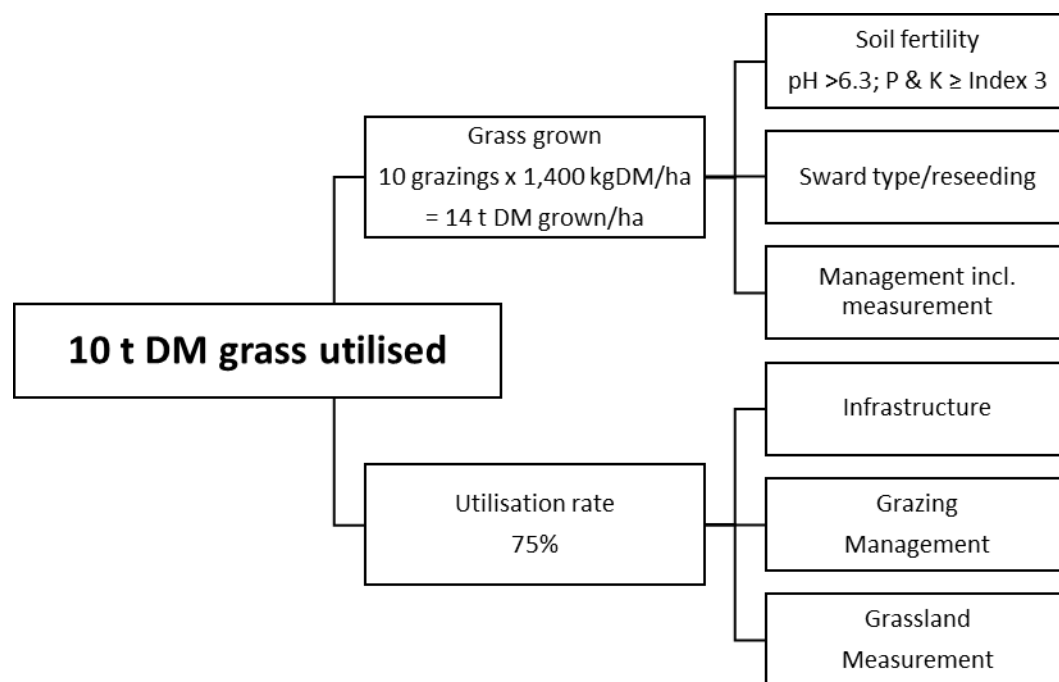
Peadar has had a keen focus on grassland management over the past number of years. He started measuring grass in 2010 with his local Teagasc advisor Hugh Rooney. The farm is walked on a weekly basis and the measurements are inputted into PastureBase Ireland. This has been a huge aid to manage grass on the farm. Last year the farm produced over 12t DM/Ha last year.

There have been significant improvements made in previous years increasing the number of paddocks on the farm to increase grass utilisation. Peadar is also a member of the BETTER farm sheep programme since 2014 which has improved the efficiency and output from the flock with the help of BETTER farm sheep advisor Frank Champion. Peadar also actively participates in the local Knowledge Transfer discussion group facilitated by local Teagasc advisor Hugh Rooney.



## Grass10 Campaign

Grass10 is a new four-year campaign recently launched by Teagasc to promote sustainable grassland excellence. The Grass10 campaign will play an important part in increasing grass growth and utilisation on Irish grassland farms, thereby improving profitability at producer level and helping to ensure the long term sustainability of Irish beef, dairy and sheep production. Significantly, it can provide the platform or framework to enable various industry stakeholders to collaborate for collective action. Given the current performance in terms of grass growth and utilisation, the need for 'collective action' should be clear.



### Objective

The objective of the campaign is to achieve **10 grazing's/paddock/year** utilising **10 tonnes** grass DM/ha. In order to achieve this objective, we will need to achieve significant changes in on-farm practices, specifically:

1. Improved grassland management skills
2. Improved soil fertility
3. Improved grazing infrastructure
4. Improved sward composition
5. Increased grass measurement and usage of PastureBase Ireland





## Grassland Farmer of the Year Competition

With 2017 designated the Year of Sustainable Grassland, and a proven link between increased grass utilization and increased profitability, the Department of Agriculture, Food & the Marine, in collaboration with numerous industry stakeholders including Teagasc, launched a competition as part of the Grass10 initiative to find the Grassland Farmer of the Year. Teagasc research indicates that grass utilisation can be increased significantly on farm.

With this background Grass10 has launched a grassland competition to recognise those farmers who are achieving high levels of grass utilisation in a sustainable manner. Practises used by these famers to increase grass production and utilisation, include soil fertility management, sward renewal, grassland measurement and improving grazing infrastructure.

*The objective of the Grassland Farmer of the Year Competition is to promote grassland excellence for all Irish livestock farmers.*

***The Kearney Family are the Overall Sheep winners of the Grassland Farmer of the year Competition 2017.***

***Congratulations!!!!***



## Grassland Management



### **PastureBase Ireland: Technologies to assist grassland management**

Technologies which enable data-informed decision-making on the farm can help to increase farmers' confidence and greatly improve grassland management. Huge leaps have been made in developing decision support tools to improve resource farm efficiency, profitability and sustainability. The primary objective of most of these tools is to increase the information available to assist in farm-management decision making as well as to collect and collate large amounts of data in a centralised database.

Teagasc launched PastureBase Ireland (PBI) – an online grassland management decision support tool – in January 2013 and Grass10 will see the roll-out of the new PastureBase Ireland website as a key component of the campaign. Upon entering data from their own farm (e.g. grass measurements), the platform provides real-time and customised grassland management advice to the farmer to assist their decision-making. These reports are developed in such a way that allows farmers to benchmark their individual farm with farm in their discussion group or in their region. The data accumulated to date indicate that PBI participating farms have achieved improvements in grass DM production and grazing management.

PastureBase Ireland is informing us that farmers need to have a good control of current grass supply in order to manage grass well. Grass cannot be managed correctly without knowledge of farm cover, grass demand and grass growth. The crucial point on any farm is utilising the feed resource produced on the farm.

The average number of grass measurements by the finalists was 40 per year. This shows that the farmers are constantly monitoring grass growth and supply which enables them to graze grass at the right cover which in turn allows them to grow more grass as re-growths are faster. The table below outlines the average grazing performance of the Kearney farm in 2017, Sheep winner of the Grassland Farmer of the Year Competition.



### Grazing performance of Kearney farm in 2017

Grazing Performance	2017
Grass production (t DM/ha)	12.3
No. grass measures completed/yr	35
Days at grass	308

Maximising the number of grazing's achieved on each paddock is a very effective method of increasing farm grass utilisation. Every extra grazing/paddock achieved increases annual grass DM production by 1.5 t DM/ha PastureBase Ireland enables the farmer to keep track of grass growth per paddock, the number of grazing's per paddock and the quantity of grass being consumed at each grazing. This highlights poor performing paddocks and deficiencies in grazing management.





## Farm Performance

The focus of output and profit on this farm is stemmed from high grass utilisation. Over the past 3 years Peadar has achieved a flock pregnancy rate of over 90%. Lambs reared per ewe joined of 1.8 has been consistently above the national average of 1.4 (Teagasc NFS data) as seen in Table 1 below.

Higher grass utilisation facilitates increased lamb output/ha. This increased level of grass utilisation and output results in improved farm profitability. This is highlighted through the lamb performance in 2018 achieved on the farm as seen in Table 2 below.

**Table 1. Flock performance for 2016, 2017 & 2018**

<b>Kearney's Mid-Season Ewe Productivity</b>			
<b>Year</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>No of ewes joined</b>	307	332	313
<b>Pregnancy rate (%)</b>	92	93	93
<b>Litter size</b>	2.1	2.0	2.2
<b>Lambs reared per ewe joined</b>	1.7	1.7	1.8
<b>Lambs Reared</b>	522	567	553

**Table 2: Lamb performance 2018**

<b>Kearney Lamb Performance 2018</b>				
	<b>Birth Weight (kg)</b>	<b>40 day weight (kg)</b>	<b>Weaning weight (kg)</b>	<b>ADG to Weaning (g/day)</b>
<b>Singles</b>	7.2	25.3	41.3	347
<b>Twins</b>	6.0	20.6	33.5	280
<b>Triplets</b>	5.0	19.2	31.3	267

## **Soil Fertility Management**

Good productive soils are the foundation of any successful farming system and key for growing sufficient high quality grass to feed the herd. Therefore, the management of soil fertility levels should be a primary objective of every farm. A recent review of soils tested at Teagasc indicates that the majority of soils in Ireland are below the target levels for pH (i.e. 6.3) or P and K (i.e. Index 3) and will be very responsive to application of lime, P & K. On many farms sub-optimal soil fertility will lead to a drop in output and income if allowed to continue. Teagasc is highlighting 5 steps for effective soil fertility management.

1. Have soil analysis results for the whole farm (soil sampling every 2 years).
2. Apply lime as required to increase soil pH up to target pH for the crop
3. Aim to have soil test P and K in the target Index 3 in all fields
4. Use organic fertilisers as efficiently as possible
5. Make sure the fertilisers used are properly balanced

For those farmers aiming to improve soil fertility on their farms, following these 5 steps provides a solid basis for success.

### **Phosphorus (P)**

The proportion of soils tested with low soil P fertility (i.e. P Index 1 and 2) has increased to 69%. This overall trend reflects the soil P fertility status on many farms, and indicates a serious loss in potential productivity. Recent research has shown that soils with P index 3 will grow approximately 1.5 t dry matter (DM)/ha per year more grass than soils with P Index 1. Most of the DM yield response in these experiments took place in spring and early summer.

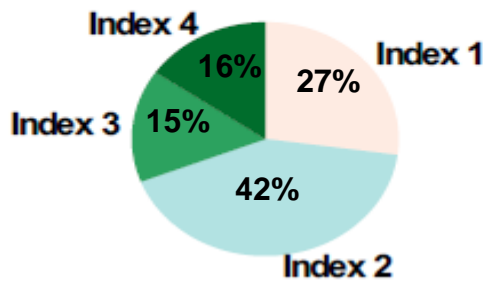
### **Potassium (K)**

Soil analysis also shows that the trend in soil K status, across dairy and drystock enterprises, broadly mirrors that for P. Despite no legislative limits on K fertilisers, K usage dropped in line with P fertiliser applications. Consequently soil test results indicate a sharp increase in soils with low K status between. Over half of the soil samples tested by Teagasc had very low to low soil K status (i.e. K Index 1 or 2). However on Peadar's farm almost 70% of the farm is index 3 or index 4 for K as seen in Figure 1.



## Phosphorus

P Index



## Potassium

K Index

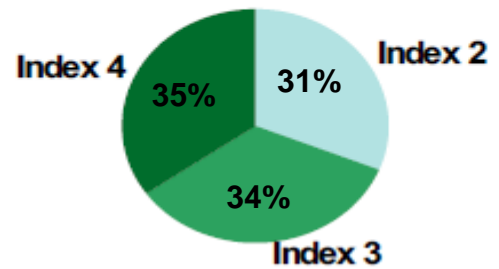


Figure 1: P and K status of the Kearney farm.

### Increasing Soil Nutrient Availability-Lime

Lime is a soil conditioner and corrects soils acidity by neutralising the acids present and allowing the micro-organisms and earthworms to thrive and break down plant residues, animal manures and organic matter. This helps to release stored soil nutrients such as nitrogen (N) phosphorus (P) potassium (K) sulphur (S) and micro-nutrients for plant uptake. In addition, ryegrass and clover swards will persist for longer after reseeding where soil pH has been maintained close to the target levels through regular lime applications.

Liming acidic soils to correct soil pH will result in the following:

- Increased grass and crop production annually
- Increase the release of soil N by up to 60 units N/acre/year
- Increase the availability of soil P and K and micronutrients
- Increase the response to freshly applied N, P & K as either manures or fertiliser

Ground limestone is the most cost effective source of lime and can be applied throughout the year when the opportunity arises. Lime is the foundation of soil fertility and is a primary step to take when correcting soil fertility.

### Lime

Soil pH > 6.2

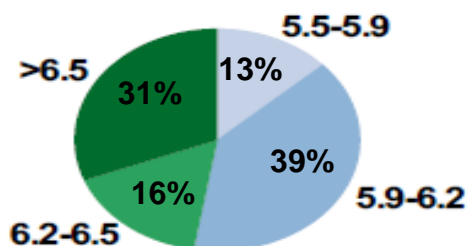


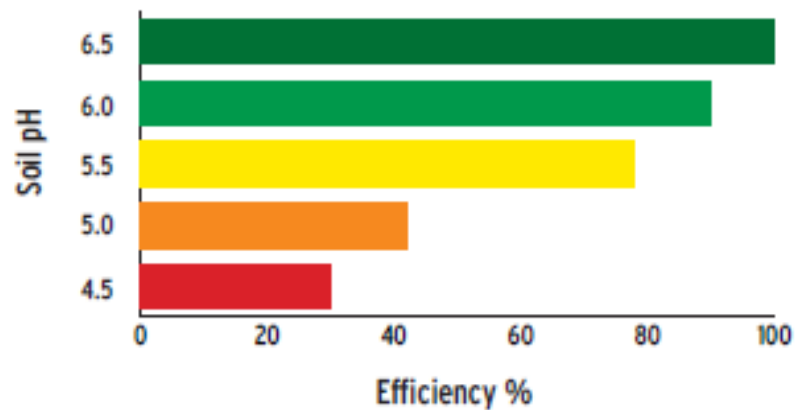
Figure 2: Soil pH status of the Kearney farm

## Maximising Nutrient Uptake

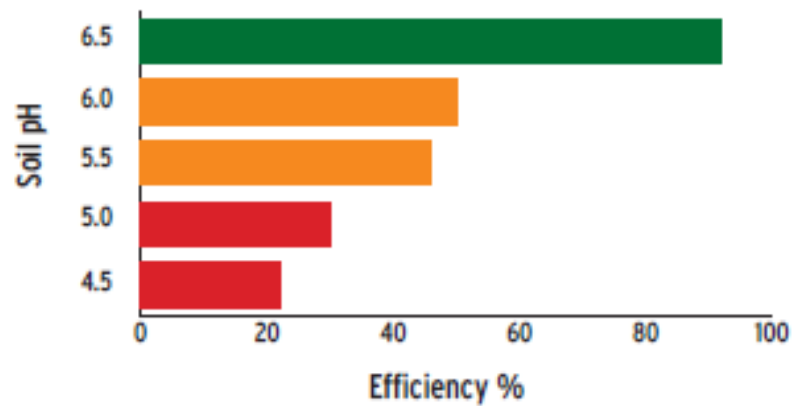
The typical nutrient value of slurry per 1,000 gallons is equivalent to a 50kg bag of 6-5-30 if spread in the spring, or a 50kg bag of 3-5-30 if spread in the summer. Using a trailing shoe instead of a splash plate application increases the nitrogen value by three units of N/1,000 gallons in spring/summer.

Good fertilizer efficiency can be achieved by having correct soil pH. This allows you to get the best use of organic manures and artificial fertilizers. As the graphs (Figure 1-3) illustrate, having soils below optimum pH reduces efficiency of nutrients. At a reasonable pH of six, any phosphorus (P) applied will only give 52% of the potential response. Hence, it would cost almost twice as much to supply the correct amount of P to a field with a pH of 6.0 versus a field with a pH of 6.5. P applied at pH 6.5 will give 92% of the potential response.

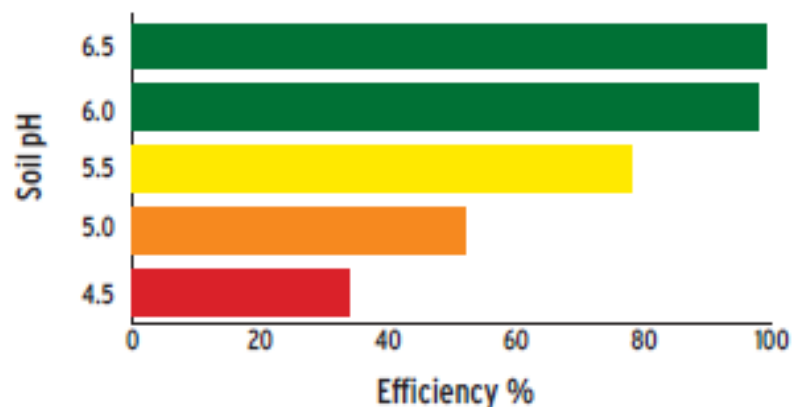
**Figure 1**  
Nitrogen (N)



**Figure 2**  
Phosphorus (P)



**Figure 3**  
Potassium (K)





## **Sheep Autumn Grassland Management Guidelines**

Autumn is the starting point of the grassland year. Management and decisions made in this period have a direct effect on the quality and availability of grass the following spring.

To ensure adequate grass availability for ewes at lambing in March you should begin to close paddocks from mid to late October onwards. This is important so we can build cover while grass growth is still active. Very little grass will be grown during December and January. When grass growth starts to increase again in February and March it is the earlier closed fields that will respond quickest to the increasing temperatures and an early application of fertiliser

Where winter housing is not available or practical ewes can be managed in an extended grazing system on grass built up earlier in the autumn with grass allocated daily or every second day. Ewes could also be wintered on forage crops, away to winter grazing or with hay/silage and concentrate supplementation outdoors. The important thing is that the sheep are confined to a smaller area of the farm (less than 20%) allowing grass supplies to build on the majority of the area.

The temptation to re-graze closed fields in December/January will always be there, especially in years where autumn grass supply is good or where winter feed reserves are low or poor quality but this grass is worth much more in the spring to the freshly lambing ewe than in mid pregnancy. A ewe's feed requirement in mid pregnancy is approximately half that of a ewe in early lactation producing milk for two lambs.

The first paddocks closed should be sheltered and close to the lambing area. Where autumn grass covers are high an electric fence can be used to reduce the area available for grazing at any one time to make ewes graze down to the desired post grazing height of around 4cm. It is important to clean swards out as tight as possible when closing as carrying higher residuals over winter will lead to a lot of dead material accumulating at the base of the sward which will depress grass growth in the spring and reduce quality.

## Sheep Autumn Rotation Planner

The grazing season begins in autumn. Decisions taken in the autumn have a direct effect on spring grass availability. Use this planner to create a closing plan for your farm

Date	Target % Area closed	Area req'd to reach target (ha)	Field Names/Nos. to be closed to reach target
Late Oct	<b>20</b>		
Mid Nov	<b>40</b>		
Late Nov	<b>60</b>		
Mid Dec	<b>80</b>		

Based on early March lambing flock, 120 day rest period over winter

### Guidelines

- The first paddocks closed should be sheltered and close to the lambing area
- Fields/paddocks should be grazed out tight to 3.5 – 4.0cm
- Use temporary electric fencing if required to reach post grazing targets without forcing sheep to graze to low heights for prolonged period
- **Do not** re-graze closed paddocks



## Grazing Infrastructure on Peadar's farm

Originally when Peadar started farming this block of land where we stand today there was 7 large fields. From this point the paddocks were mostly divided in two resulting in 14 paddocks being created. This comprised of a combination of permanent and temporary fencing. Water pipes were laid with moveable drinkers. This increased grass utilisation on farm. However paddock sizes were still difficult to operate a rotational grazing system.



Following on Peadar strategically placed temporary fencing to create a total of 24 paddocks on the farm approx 1.6 acres per paddock. Even though 3 reels of temporary fencing are used they remain in place during the main grazing season on a permanent basis. This reduces the labour involved in moving them on a regular basis.



## Strip Grazing

1. Set up a grazing block to feed your livestock for a maximum of 3 days.
2. Put up a back-fence when moving livestock on to the next block.
3. Sheep get fresh grass while regrowth occurs on grazed block.
4. Sheep should graze down to (3.5-4cm ewes) (5.5-6cm lambs post weaning) before moving them on.
5. Sheep should be entering grass covers of 8cm grass.







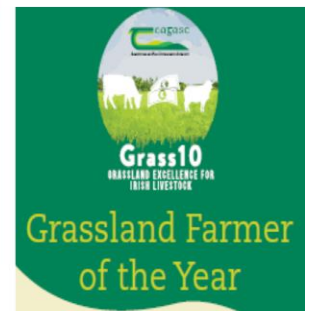
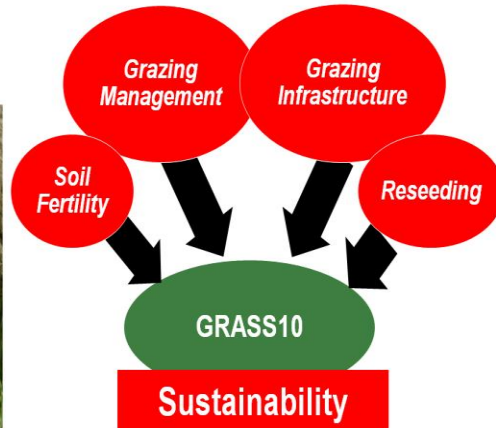
# Grass10



## Objective:

**To increase the amount grass eaten to 10 t DM/ha/year  
& Achieve 10 grazings per paddock per year**

- 5.6 t grass DM eaten/ha (NFS)
- 5 grazings/paddock/yr (PBI)



# Kearney's Farm Performance



Year	2016	2017	2018
No. of ewes joined	307	332	313
Pregnancy rate (%)	92	93	93
Litter size	2.1	2.0	2.2
Lambs reared per ewe joined	1.7	1.7	1.8
Lambs Reared	522	567	553

	Birth Weight (kg)	40 day weight (kg)	Weaning weight (kg)	ADG to Weaning (g/day)
Singles	7.2	25.3	41.3	347
Twins	6.0	20.6	33.5	280
Triplets	5.0	19.2	31.3	267

• Male singles kept in separate group pre-weaning and offered meal – early finishing  
• Remainder offered no meal post-lambing



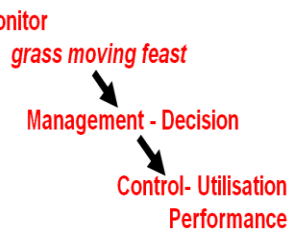


# Grass Measurement/Budgeting



## Information to aid decisions:

- Not complicated or expensive
- Many different methods/ways
- Chosen method - irrelevant



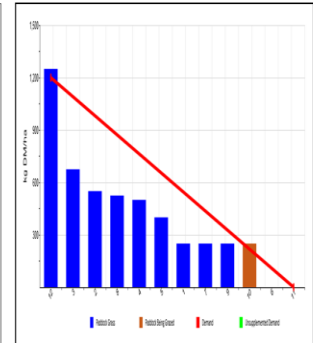
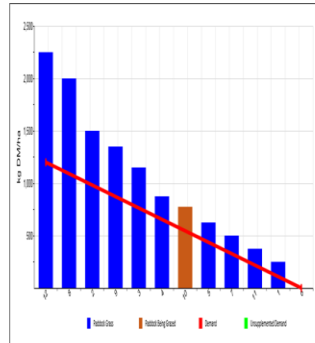
## Grass wedge

- Arrange paddocks highest to lowest
- Draw demand line –target pre to post
- Deficit- supplement/reduce demand/apply fertilizer
- Surplus- remove as silage/increase demand

### Surplus

### Deficit

Days ahead guidelines	
March	25
April	18-21
May-July	12-14
August	15-20
September	25-30
October-December	30-40



# Autumn Grassland Management

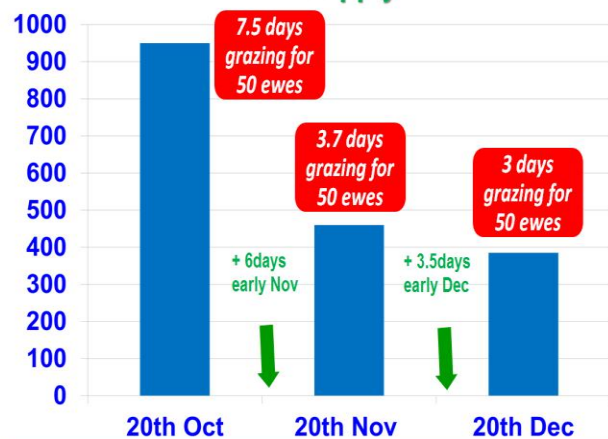


## Autumn Closing Plan

Date	% Area closed	+120 days
Late Oct	20	Early Mar
Mid Nov	40	Mid Mar
Late Nov	60	Late Mar
Mid Dec	80	Early Apr

Based on mid -March lambing flock, 120 day rest period over winter

## Effect of closing date on spring grass supply



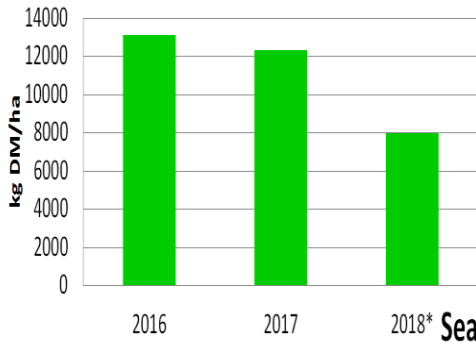
Days ahead  
 $7.5 + 6 + 4 + 3.5 + 3 = 24$   
 Avg farm cover ~650kg DM/ha

Gr/day Early Mar ~15kg/DM/day  
 $= 10-15\text{days. Total days ahead} = 35-40$   
 (Mid April 'Magic day')



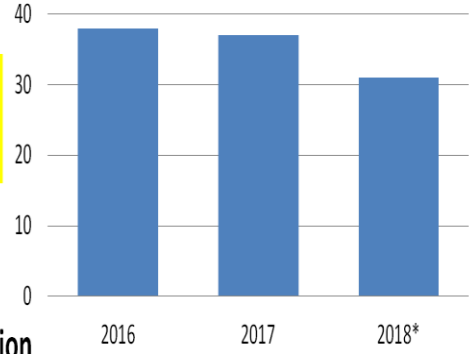


## Grass DM Production



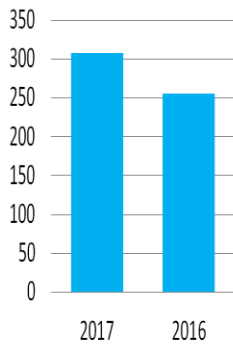
35 Walks Completed

## Number of Covers

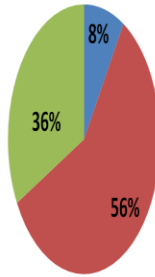
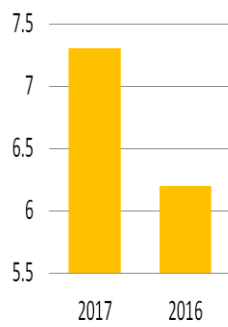


## Seasonal DM Production

## Grazing Season Length (days)



## Number of events



## Take home messages

- Measurement is key to managing grass
- Potential to grow & utilise more grass
- Target >10 grazings per paddock

## Grazing Infrastructure



### Kearney's Paddock System

- Average paddock size ~ 0.65 Ha (1.6 acres)
- Originally 7 permanent divisions
- Now increased to 24 divisions
- Temporary divisions used as required

### Mid-season grass growth pattern:

- Day 0 = Grazed
- Day 3-7 = 1<sup>st</sup> leaf
- Day 14 = 2<sup>nd</sup> leaf
- Day 21 = 3<sup>rd</sup> leaf
- Day 28 = 4<sup>th</sup> leaf =

- 1<sup>st</sup> leaf dies
- Reduced quality
- Reduced grass growth





# Setting the sheep farm up to grow & utilise grass!



Every additional ton of grass eaten/ha will **increase profit** on

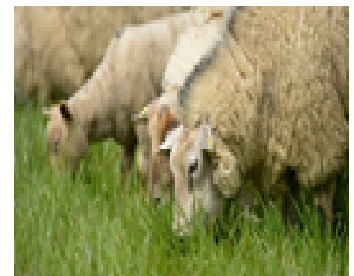


Sheep farms by **€105/ha**

Investment	Cost	Impact	Payback (Years)
Increase soil P & K	20 kg/ha of P 50 kg/ha of K	+1.5 t grass DM/ha/yr	<1 yr
Improve grazing infrastructure	€5/m exterior fence & €1.30/m temp. interior fence	+1.5 t grass DM/ha/yr	2 yrs
Reseed farm (8 yr cycle)	€650/ha (€260/ac)	+1.5 t grass DM/ha/yr	4 yrs

**“Grazing infrastructure needs to be improved on extremities of the grazing area on other farms”**

Judges Report



## Soil Fertility – 5 steps to setting the farm up to grow grass!



**Kearney soils**

Lime Requirement – 40%

2 t/ac required

Deficiency Soil P - 58%

FYM now

Deficiency Soil K - 15%

Muriate Of Potash (0:0:50)

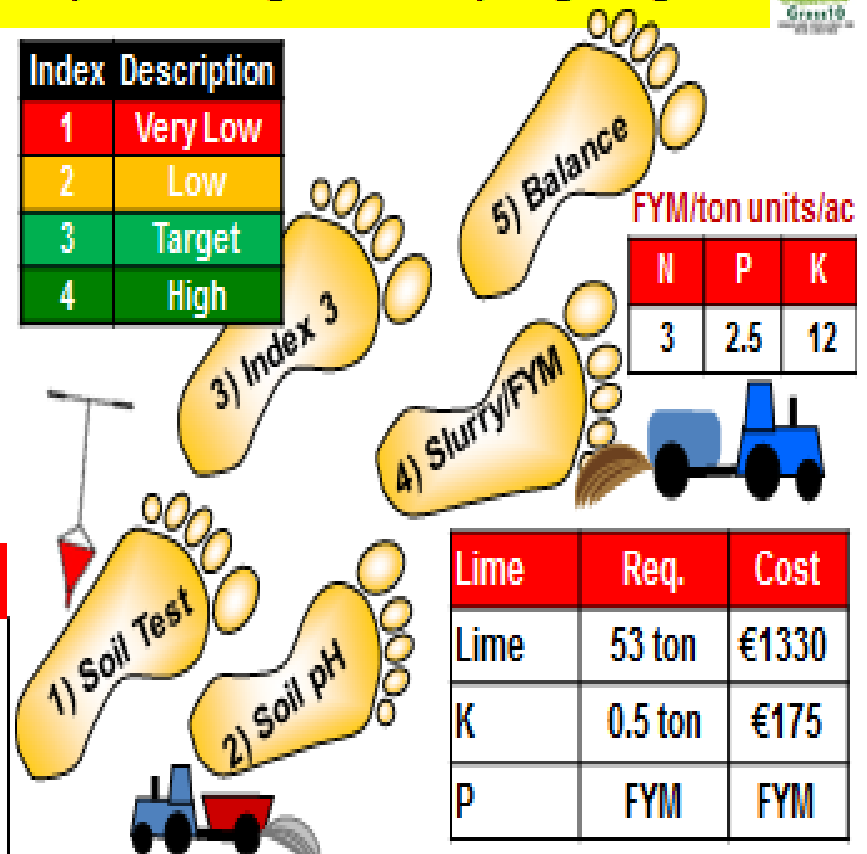
**Drystock soils**

Lime Requirement - 53%

Deficiency Soil P - 67%

Deficiency Soil K - 62%

Index	Description
1	Very Low
2	Low
3	Target
4	High



Lime	Req.	Cost
Lime	53 ton	€1330
K	0.5 ton	€175
P	FYM	FYM

## 2018 Fodder Requirements

150 ewes & 40 sucklers-to-weaning  
Farm; **37Ha**. Stock Rate; **2.1LU/Ha**.

Animal Type	No. of stock	Number of Months	Tonnes Silage/ animal/ month	Total Tonnes
Ewes	150	3	0.15	68
Hoggets	38	5	0.12	22
Sucklers	40	5	1.4	280
Heifers	8	5	1.3	52
0-1 Year	12	5	0.7	42
<b>Total Required –Tonnes</b>				<b>465</b>
<b>(Tonnes x 1.25) →Bales</b>				<b>580</b>

## What Fodder is Available?

Silage 2018	Tonnes
1 <sup>st</sup> Cut (40ac)	285T (360 bales)
2 <sup>nd</sup> Cut (20ac -in early Sept)	85T (105 bales)
Surplus Bales	(Fed During Drought)
<b>Available – Tonnes</b>	<b>370</b>
<b>→ Bales</b>	<b>465</b>

**Deficit 115 Bales - 20%**

## Plan;

1. Reduce Demand -Sell 5 cull cows before the winter  
=> **45 Bales Saved.**
2. Purchase Ration - 3T Cows + Restrict Silage to 75%.  
=> **45 Bales Saved.**
3. Buy 25 bales silage/hay for cows  
=> **25 Bales Bought.**
4. Review plan on 1<sup>st</sup> Feb.

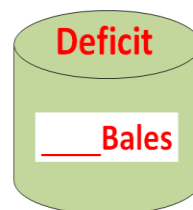
**2017:** 212 bales made to feed 313 Ewes lambing down in 2018.

## 2018 Fodder Budget:

Animal Type	No.	No. Months	T silage/animal/ month	Total Tonnes
Ewes	280	3.5	0.15	147 (185)
Hoggets			0.12	
<b>Total Required – Tonnes</b>				
<b>(Tonnes x 1.25) →Bales</b>				
<b>Available</b>				
1 <sup>st</sup> Cut (bales)			100	
2 <sup>nd</sup> Cut – 5 <sup>th</sup> Sept (bales)			60	
<b>Total Available (bales)</b>				<b>160</b>
<b>Deficit (bales)</b>				

## Filling the Fodder

### Gap;



### Take Home Messages:

1. Identify the deficit level
2. Look at the options available
3. Make a plan
4. START NOW
5. Review on 1<sup>st</sup> Feb 2019.

