

Grass10 Report 2017 – 2020



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





Grass10 Report

2017 – 2020

Report Authors

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January 2021

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Executive summary

- The number of grassland farmers using PastureBase Ireland (PBI) increased from 2,393 in 2017, completing on average 14 grass cover measurements per farm, to 3,664 grassland farmers in 2020, completing on average 19 grass cover measurements per farm
- The 701 grassland farmers that participated in the 42 Grass10 courses in 2019/20 increased grass production by 1.8 tonnes DM/ha and their level of participation in grass measurement increased from 20% to 55%
- It is estimated that grass production on dairy and drystock farms completing greater than 20 grass cover measurements per year in Pasturebase Ireland are producing 2.9 and 2.3 tonnes of DM/ha greater than the national average dairy and drystock farmer, respectively
- A number of different communication channels were successfully used during the Grass10 campaign; the most successful being the Weekly Grass10 Newsletter and the use of social media outlets, especially in 2020
- The Grassland Farmer of the Year Competition has been very successful in creating huge awareness of the Grass10 campaign in the promoting excellence in grassland management
- The continued development of PBI has increased grassland farmers user ability of the software; specifically the on-line App (>1,000 users weekly at peak in 2020)
- The development of the MoSt predictive grass growth model has allowed grassland farmers to increase their precision of grazing management by taking account of weekly variation in grass growth rates. This is exemplified with Met Éireann using the predicted grass growth in their farming forecast on RTÉ TV at lunchtime on Sundays
- There has been a greater uptake of best grazing management technology on dairy farms as compared to drystock farms as indicated by the much greater number of dairy farmers carrying out weekly grass measurements and the increases in grass utilisation and milk solids production per hectare over the four years of the Grass10 campaign
- There was a significant improvement in soil fertility in grassland farms over the four years of the programme; over the period 2016 to 2019 the proportion of soil samples analysed with soil P Index 3 and 4 increased from 37% to 50%; soil K Index 3 and 4 increased from 44% to 58% and soils with pH greater than 6.1 increased from 35% to 59%
- The continued adoption of best grazing management practices at farm level will be critical in increasing the future sustainability of grassland farming in confronting future challenges with regards to climate change, ammonia emissions and water quality. Increasing nitrogen use efficiency on grassland farms will be a major objective.

Introduction

The underlining principle of grazing management is to optimise the quantity and nutritive value of the forage consumed by the ruminant animal. It is widely accepted in that, in ryegrass/white clover pastures, persistence, production and nutritive value are optimised with a grazing rotation that allows development of between two and three leaves per tiller (two- to three-leaf stage) and a post grazing residual of between 35 and 45 mm. Additionally, in pasture based systems it has been shown that there is a strong relationship between the amount of grazed pasture in the diet and the costs of milk and meat production, with operating costs of production declining with increased reliance on grazed pasture. Irish pasture based systems of milk and meat production have a comparative advantage over farms in regions where, due to climatic constraints have to house animals for long periods of the year. To maintain this comparative advantage, considerable research and development has focussed on increasing grass production and the direct utilisation under grazing. While maintaining grass production and utilisation will continue to be a challenge, other challenges are emerging in terms of the environmental impact.

Ireland's comparative advantage in milk and meat production can be explained by the relative cost of grass, silage and concentrate feeds. Grass utilisation is optimised in a situation where soil fertility is optimum, where the farm has excellent grazing infrastructure, the grassland pastures are predominately perennial ryegrass/white clover and best grazing management practices are applied using weekly monitoring grass supply. Recent industry reports (Food Harvest 2020 and Food Wise 2025) have highlighted the important role grass can play in future systems of livestock production. Additionally, grass based systems of milk and meat production promotes a sustainable, green, and high quality image of animal production across the world. Recent Teagasc analysis has indicated that net profit per hectare is increased by €173/ha for each additional tonne of grass DM utilised on Irish dairy farms, with the corresponding figure for drystock farms being in the region of €105/ha.

In 2017, Teagasc launched a multi-year Grass10 campaign (four years, 2017-2020) to promote sustainable grassland excellence on Irish livestock farms (dairy, beef and sheep). The Grass10 partners are Grassland Agro, AIB, FBD, Department Agriculture Food & the Marine and the Irish Farmers Journal. The primary objective of the Grass10 Campaign was to utilise 10 tonnes of grass DM/ha/year using 10 grazings per paddock on grassland farms in Ireland. As well as working closely with all partners and Teagasc advisory programme, the Grass10 programme worked closely with the Grassland Science Department in Teagasc.



Objectives of the Grass10 programme

In order to increase grass utilised/ha to 10 tonnes using 10 grazings per paddock the following farm practice changes were prioritised:

- Grazing infrastructure — improve paddock layout, water system and farm roadways.
- Soil fertility — increase soil pH, P and K
- Reseeding — reseed poor performing paddocks
- PastureBase Ireland — increases both the number of farms and number of measurements per farm per year on PastureBase Ireland
- Grassland management skills — improve the grassland skills of farmers using Grass10 courses.



Grass10 Grazing Courses 2021

The courses are for Dairy, Beef and Sheep farmers around the country who want to increase grass utilised, reduce input costs and improve the profitability on their farm.

Why would this course benefit you?

- Develop your knowledge of grazing management to grow and utilise more grass and to extend the grazing season with practical on farm training
- Build capacity and confidence to; implement better grazing techniques, measure grass, and use PastureBase reports to make grazing decisions
- Honest and open discussion group with other like-minded farmers
- Encourage and support from advisors and farmers to help you to stay focused and make progress
- Improve the Nutrient Use Efficiency on your farm
- Help you to meet your derogation requirements through grass measuring

Delivery:

- On-farm Practical Experience with Advisors/Specialists & Farmer Coaches
- Meet 8-10 times per year

For more information visit:

www.teagasc.ie/grazingcourses

or scan the QR code with your phone camera



SCAN ME



“We started milking cows in 2014 and we had to learn a lot of new skills. One of the most beneficial skills we learned was grassland management.”

Mike Birmingham,
Dairy Category Winner
Grassland Farmer of the Year 2019



“Grass management is key to a simplified and successful suckler and beef farm. Grass measurement is the next step for farmers to take.”

Trevor Boland,
Suckler Category Winner
Grassland Farmer of the Year 2019



“Grass measurement has been of great benefit to me as I improved the productivity and profitability of my farm over the last few years.”

John O'Connell,
Sheep Category Winner
Grassland Farmer of the Year 2019

Development of farmer friendly decision support tools

Increasing the precision in grazing management requires the development of easy to use farmer friendly decision support tools. To increase the application of best grazing management practices at farm level, two simple wall charts were developed.

Grazings Per Paddock Per Year

The 'Grazings Per Paddock Per Year' wall chart (Figure 1) was developed to record the number of grazings per paddock over the grazing season. This was linked to the number of grazing rotations, with a target start and finishing date for the first rotation; six mid-season grazing rotations from early April until early August; three remaining grazing rotations from early August until late November. For example, if a paddock can grow on average 1,400 kgDM/ha at every grazing and it is grazed 10 times during the year, the level of grass production will be equivalent to 14 tonnes grass DM/ha/year. An analysis of grazing performance from PastureBase Ireland demonstrated that there was a very strong relationship ($r^2=0.73$) between the level of annual grass production and the number of grazings achieved.

Paddock	Paddock Name	Rotation Number (Record Date of Grazing)												Total	
		1	2	3	4	5	6	7	8	9	10	11	12		
1															
2															
3															
4															
5															
6															
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Targets	Finish by Apr 10th	←	Apr 10th - 6 Grazings @ 20 days each - Aug 10th						→	Mid August to Mid Sept	Mid Sept to Mid Oct	Mid Oct to Mid Nov	Late Nov	Dec	

Figure 1. Grazings per paddock per year whiteboard charts

Monthly Grazing Management Guide

The 'Monthly Grazing Management Guide' wall chart (Figure 2) was developed to highlight the main grassland management practice that was important in each month of the year. Management practice that would be important in early January would be to soil sample the farm; in early February do your first grass cover measurement and set out your spring rotation planner; 60% of the farm grazed by the 17th of March; start your second rotation in early May and so on throughout the year.

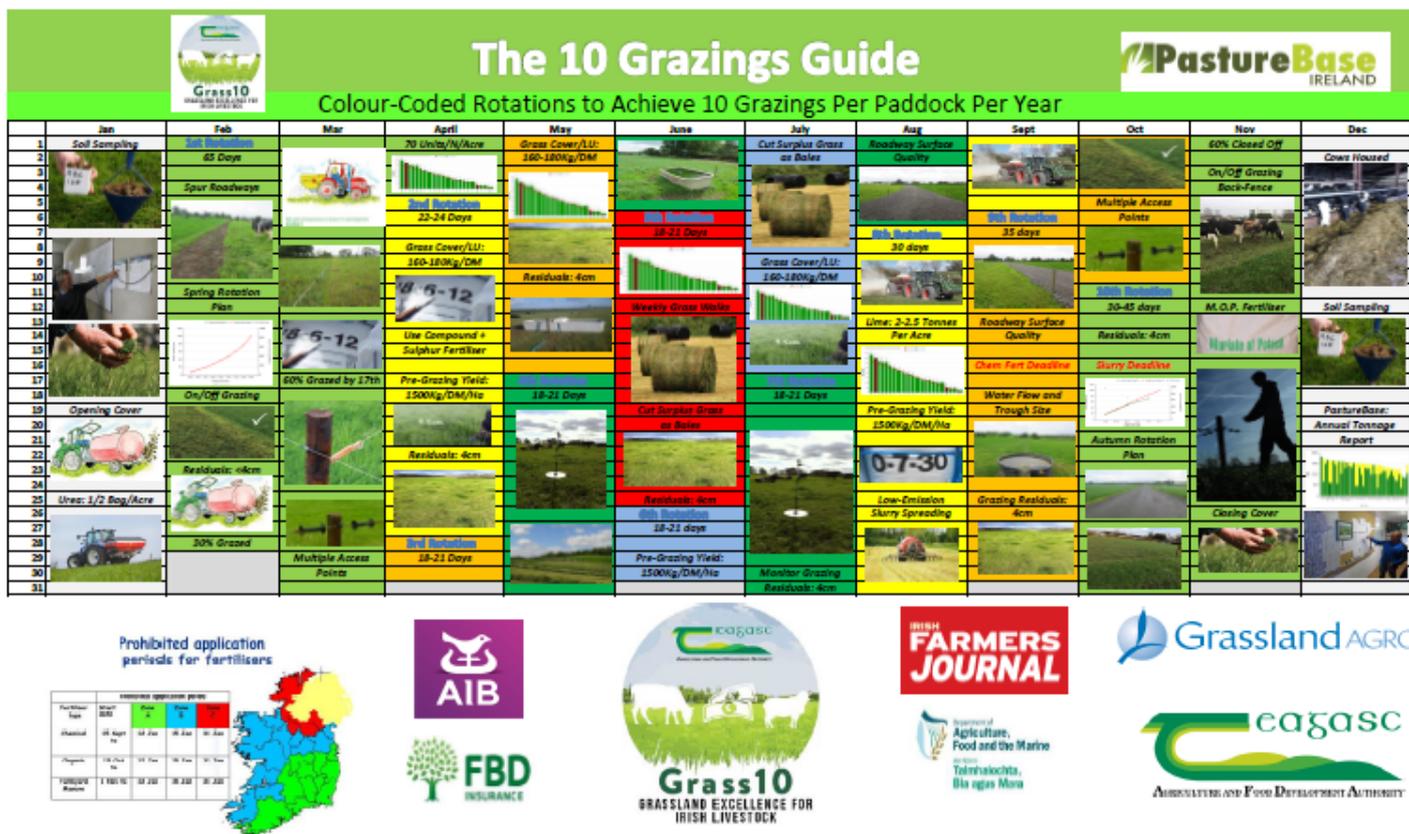


Figure 2. Monthly grazing management guide



Developments in PastureBase Ireland (PBI)

In recent years, PastureBase Ireland (PBI) has undergone significant development. This development was farmer driven along with guidance from the PBI steering group which consists of farmers and advisors.

Development can be divided into four main categories;

Enhance farmer experience and ease of data collection

One major development that has greatly enhanced PBI usage was the launch of the offline 'PBI Grass' app in mid-2018. Today, over 1,700 farmers have this app downloaded on their smart device, which is available on Google Play and App Store. This app makes data collection (grass covers, graze dates, fertiliser applications, spring rotation planner etc.) much easier for the farmer. Over 50% of grass covers are now uploaded from the offline app. The landing page on PBI was redesigned to be more informative while indicating to the farmer at different times of the year the important tasks to complete, while personalising to the farmer's needs. Farmers can also send requests/invites to their peer farmers so they can share data and learn from each other. Since January 2019, students in agricultural courses are also able to get log-in details to PBI and are shown how to input grass covers and complete summary reports.

New tools to aid decision making

For the ever increasing number of farms on the system, new tools were developed which include;

- projected wedge
- weekly grazing planner
- grass budget
- fodder budget.

The projected wedge and weekly grazing planner are both available on the browser and offline app. These tools give farmers the confidence to remove paddocks as surplus silage or reduce demand in periods of deficit.

The weekly grazing planner assists the farmer to decide what paddocks he/she wants their livestock to graze for the next few days and PBI will calculate the residency time in each paddock.

As a consequence of the drought in 2018, it was decided to develop a winter fodder budget which enables users to calculate their winter feed requirements and calculate the feed available to them. Before the inclusion of this budget it was difficult to know if farms had enough fodder for the winter period. In autumn 2020, Teagasc completed a national fodder survey using this tool and hope to continue this exercise annually.

Making more use of data collected through additional reporting

Each week, PBI is collecting a vast amount of data from each farm and one weakness was presenting this data to farmers. Over the past 2–3 years the following reports have been deployed and are available to farmers;

- grass
- farm cover
- milk
- reseeding
- soil fertility
- farm summary
- fertiliser
- reports.

These reports allow users to compare different parameters with different years for their own farm and with their peer farmers. These reports are particularly useful for discussion groups to give visiting farmers an insight into the grassland management on the host's farm. Feedback has been very positive from both advisors and farmers. Figure 3 shows the key individual grassland farmers details on the landing page in PastureBase Ireland.



Figure 3. The PastureBase Ireland landing page showing the key grassland details of the farm

Linking to third party service providers and establishing data links

Another aspect of PBI development was linking up with other service providers to add value to data already being recorded by farmers. One major success was the link up with 13 milk processors; Arrabawn Co-op, Aurivo Co-op, Bandon Co-op, Barryroe Co-op, Centenary Co-op, Dairygold Co-op, Drinagh Co-op, Glanbia (GII), Kerry Agribusiness, Lakeland Co-op, Lisavaid Co-op, North Cork Co-op and Tipperary Co-op. When milk is collected from a farm the details are sent to PBI the day after. In PBI, litres per cow, kilograms of milk solids per cow, kilograms of milk solids per hectare are calculated and displayed. This information adds huge value to data in PBI. Farmers can see the inputs (grass and meal) and the output (kg milk solids).

New tools for measuring grass are always emerging, one being the Jenquip EC20. This platometer is automatically linked to PBI which makes grass measuring much easier for the farmer. PastureBase Ireland is also linked to the Grasshopper platometer.

Since 2020, farmers who test their soils with FBA Laboratories can request to have their soil fertility data uploaded onto their PBI profile. This information is then used in annual tonnage and fertiliser reports where it shows the soil fertility, the amount of fertiliser/slurry applied and the amount of grass grown in each paddock.

Over the period 2017-2020, the number of grassland farmers using PastureBase Ireland has increased 2,696 – 3,664, while the number of grass cover measurements completed per farmer has increased from 14 – 19. Table 1 shows the total grass dry matter production (t DM/ha) on dairy and drystock farms recorded in PastureBase Ireland with 30 or greater (dairy) and 20 or greater (drystock) grass cover measurements 2014 to 2020. The average grass DM production was 13.2 and 11.0 tonnes of DM/ha for dairy and drystock farms respectively over the seven

years. Grass production in 2018 was significantly lower on both dairy and drystock farms due to the summer drought. On average over the seven years the number of events per paddock was greater in dairy (8.1) than on drystock farms (5.4).

Table 1. Total grass dry matter production (t DM/ha) on dairy and drystock farms recorded in PastureBase Ireland with 30 or greater (dairy) and 20 or greater (drystock) grass cover measurements 2014 to 2020

	Dairy		Drystock	
	Mean	Range	Mean	Range
2014				
Total DM production (t DM/ha)	13.0	17.7-5.8	11.8	14.7-8.7
Grazing DM production (t DM/ha)	12.0	17.3-5.8	10.3	15.1-8.1
Silage DM production (t DM/ha)	0.9	4.9-0.0	1.5	3.0-0.2
No. of events per paddock	8.1	11.8-5.3	5.0	6.9-4.0
2015				
Total DM production (t DM/ha)	13.2	19.7-5.5	12.2	14.6-9.1
Grazing DM production (t DM/ha)	12.4	18.6-5.4	9.8	12.7-7.2
Silage DM production (t DM/ha)	0.9	4.2-0.0	2.4	4.6-0.0
No. of events per paddock	8.2	11.2-5.0	5.4	8.1-3.9
2016				
Total DM production (t DM/ha)	13.4	18.0-7.2	12.0	15.5-9.3
Grazing DM production (t DM/ha)	12.3	17.8-6.2	10.2	14.0-8.1
Silage DM production (t DM/ha)	1.1	5.3-0.0	1.8	3.9-0.3
No. of events per paddock	8.5	11.8-6.0	5.1	7.0-2.9
2017				
Total DM production (t DM/ha)	14.3	21.7-8.0	11.3	18.8-5.3
Grazing DM production (t DM/ha)	13.3	20.5-8.0	10.2	15.3-5.3
Silage DM production (t DM/ha)	1.0	5.7-0.0	1.1	8.1-0.0
No. of events per paddock	8.6	13.0-5.2	6.3	9.2-3.5
2018				
Total DM production (t DM/ha)	11.6	17.9-7.8	9.2	17.5-5.1
Grazing DM production (t DM/ha)	10.6	16.0-6.2	7.7	14.0-4.0
Silage DM production (t DM/ha)	1.0	4.2-0.0	1.5	6.8-0.0
No. of events per paddock	7.5	10.6-4.8	5.2	8.5-3.0
2019				
Total DM production (t DM/ha)	13.6	20.9-10.6	10.2	16.0-7.0
Grazing DM production (t DM/ha)	11.4	18.8-5.5	7.6	14.9-4.0
Silage DM production (t DM/ha)	2.2	7.4-0.0	2.6	6.5-0.0
No. of events per paddock	7.9	12.7-4.3	5.2	7.6-2.5
2020				
Total DM production (t DM/ha)	13.5	18.8-8.4	10.1	16.9-6.5
Grazing DM production (t DM/ha)	11.6	17.6-6.3	8.3	15.8-4.6
Silage DM production (t DM/ha)	1.9	6.6-0.0	1.8	6.3-0.0
No. of events per paddock	8.0	13.0-3.8	5.6	8.0-2.8

* 2018 — Moisture deficit (June and September)

* Numbers of farms in dataset increasing annually

Grass growth model

In pasture based systems, farmers daily grass management decisions is of huge importance to ensure good quality feed availability for the animals during the grazing season. Several decision support tools exist helping farmers to manage their grass, based on historical information. Being able to predict grass growth for the following week at farm level would help farmers to better anticipate variations in grass growth.

Model and pilot program presentation

The Moorepark St. Gilles Grass Growth (MoSt GG) model is a dynamic model working at the paddock and farm level. The model takes into account soil type, weather and the grazing management practice to predict farm grass growth. Since early 2019 the model is being used to predict grass growth on 40 farms (55 since early 2020) across Ireland. The farms selected completed more than 30 farm covers (herbage mass estimation) and recorded N fertiliser application (including slurry N) in PastureBase Ireland (PBI). The farms are representative of soil type and geographic variability of Ireland, the repartition of the farms and grass growth predictions for a specific week is presented in Figure 4a. Each grass growth displayed is specific to the particular farm.

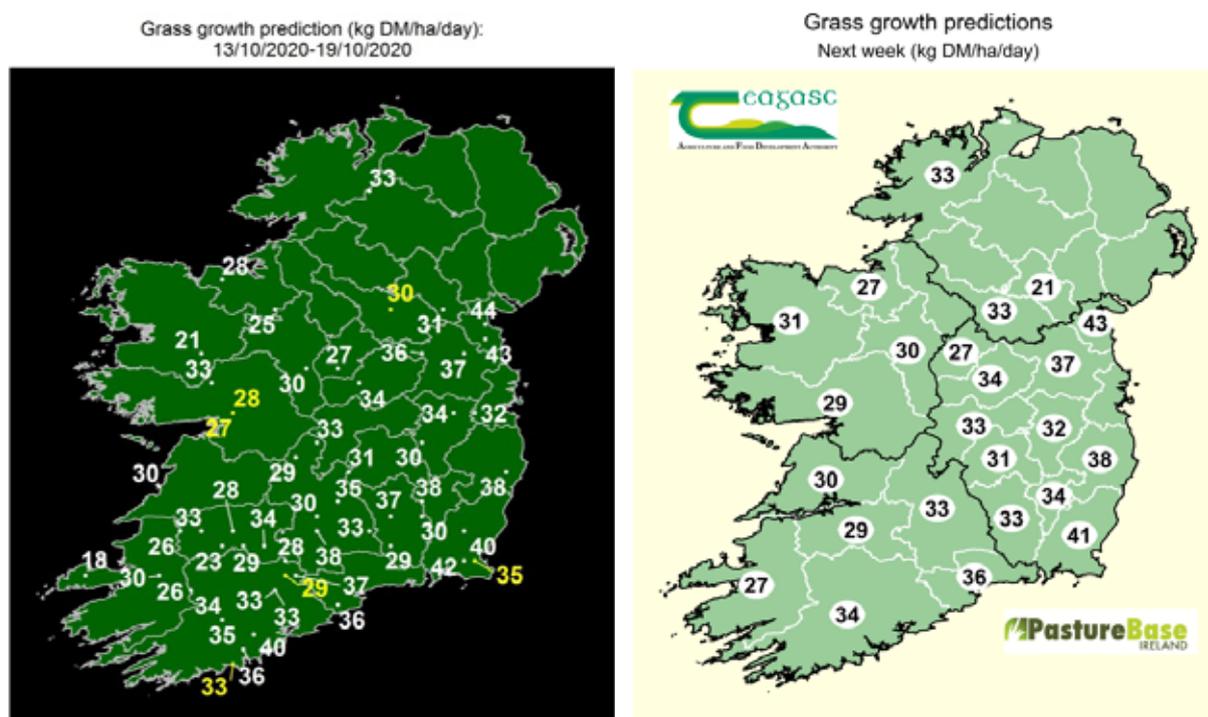


Figure 4a & 4b. Grass growth prediction from the MoSt grass growth model a) specific by farm b) averaged by county

How does it work?

To be able to run a grass growth prediction for specific farms, daily weather forecast for the following week is necessary in terms of daily rainfall, temperature and solar radiation. This can be supplied by Met Eireann based on the nearest met station to that farm or can be supplied by the farmer based on data collected on that farm. Daily historical weather for each day of the year is also necessary, this is mainly used to be able to predict drought even more accurately. This weather data provided by Met Eireann for a specific farm is modelled based on weather data from a met station close to that particular farm. All the information about paddocks, grazing management (grazing or cutting) and fertiliser application required to run the model are entered weekly by the farmers into PBI, from where they are downloaded

and transformed into suitable input for the MoSt model. Accurate recording of N application as well as grazing information is very important for the accuracy of the prediction, as the model will underestimate grass growth if weekly fertiliser applications are not recorded by the farmer.

The model is simulated every Tuesday for each paddock of the farm involved in the project and the specific growth prediction is then sent directly to the farmer (Figure 4a). The predictions are then averaged by county to create the map presented in the Grass10 newsletter (Figure 4b).

First results and feedback from 2019

Figure 5 shows a comparison between grass growth predictions from PBI, grass growth prediction sent to the farmer and the grass growth predictions based on historical weather data instead of the forecasted weather data. The utilisation of historical weather instead of forecast does lead to a small increase in accuracy.

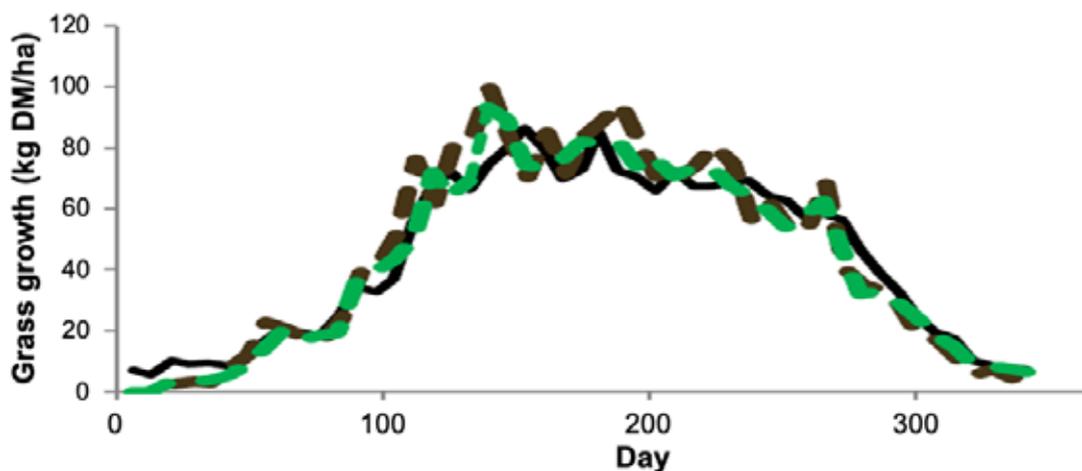


Figure 5. Comparison between grass growth obtained from PBI Ireland (Black), the value sent to the farmer (Brown) based on predicted grass growth and values based on actual weather (Green) average of the 40 farms simulated

A survey was conducted at the end of December 2019, farmers who answered the survey ranked the usefulness of the model four out of five. Farmer feedback has also shown that 75% of the farmers in the programme adapted their management based on the predictions (for example feeding additional silage or closing paddocks) and gave them confidence in their decisions.

What now?

As previously stated, the predicted grass growth data is based on historical modelled weather data provided by Met Eireann. This year has shown that modelled rainfall data is not always accurate and can vary greatly from location to location. This is why Teagasc took the decision to purchase 30 weather stations; these weather stations are now installed on farms across the country. Currently, the model is only used on 55 farms, it is planned to get more farms into the pilot programme and to have a better coverage of the west of the country. In the future, the model will be incorporated directly into PBI, any farmer entering fertiliser application and having recorded enough farm covers will have direct access to the grass growth predicted for their own farm.

In 2020, Met Éireann started using the predicted grass growth to predict grass growth rates for the week ahead in their farming forecast on RTÉ TV at lunchtime on Sundays.

Communication channels used during the Grass10 campaign

Grass10 information was distributed using a range of communication channels (print, digital, group, one-to-one, group events and public events) to maximise reach to all relevant audiences. Key technical messages were placed in the farming press (print and online) on a monthly basis. Regular provision of timely information to both service providers and industry stakeholders was also provided to ensure inclusion of key messages in industry newsletters.

Weekly Grass10 newsletter

The Grass10 newsletter was dispersed to over 1,500 industry stakeholders and 4,000 PastureBase Ireland users weekly. It was a very successful communication tool for the Grass10 programme. It was produced every Tuesday using the grass measurements taken by grassland farmers the previous day (Monday) obtained from PastureBase Ireland. This data was used to develop the newsletter which included:

- Average farm grass cover (kg DM/ha), grass cover per livestock unit (kg DM/LU), grass growth rate (kg DM/ha/day), grass demand (kg DM/ha/day), stocking rate (LU/ha) and pre-grazing yield (kg DM/ha) for the previous seven days. These figures are also broken down by province to take regional differences into consideration
- Two maps of Ireland showing current grass growth rates for each county as well as a predicted grass growth from the MoSt GG model for the week ahead
- Informed grassland farmers of current grass DM content based on samples analysed in both Moorepark and Ballyhaise to assist farmers in grass cover estimation
- Supplied grassland management tips for the week ahead based on current grass covers, the predicted grass growth rates for the week ahead and budgeted grass cover depending on time of year
- Showcase actual farm case studies on how grassland farmers were using grass measurement data to apply best grazing management practices
- Update grassland farmers of new emerging technologies from research
- Used as a platform to advertise grassland events including farm walks, conferences, PastureBase Ireland training, social media days, etc.
- Contained research updates from key grass based trials that are ongoing in the Teagasc Research Farms around the country such as the Grass/Clover trial in Clonakilty/Moorepark.

PastureBase Ireland and Grass10 website

Both the PastureBase Ireland and the Grass10 websites were important source of information in relation to grassland management. All information in relation to current grass growth rates were updated weekly.

National media including farming publications, press releases and local radio

The Grass10 programme was the main source of technical information with regards to grassland management over the four years of the programme. Technical information was published on a regular basis in both the Teagasc Newsletter and Today's Farm. Additionally the Irish Farmers Journal (partners in the programme) featured outcomes from the programme on a regular basis and especially in relation to the Grassland Farmer of the Year competition.

Social media including Twitter, Facebook, Instagram, YouTube clips and live streaming of events

Social media was a great way for the Grass10 programme to establish and grow an online community of farmers. Grass10 has been present on Twitter since the campaign started, under the Twitter handle @TeagascGrass10. It has been an important feature to increase awareness of the Grass10 campaign online. By late 2020 there are over 3,650 followers of the Grass10 Twitter account. This platform is used as a communication tool for all Grass10 messages, events, publications, videos and the Grass10 Newsletter. The page works closely with the PastureBase Ireland account (5,800 followers) and the Teagasc corporate account (29,200 followers) managed by the Teagasc PR team to increase the reach of the content.

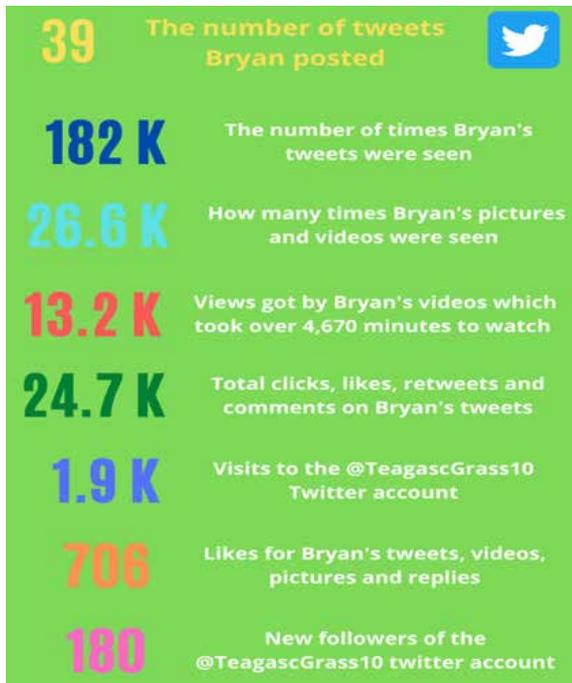
Table 2. Social media summary for 2019 and 2020

	Tweets	Impressions	Profile Views	Mentions	New followers
Average / Month	83	95,737	2,894	173	152
Total	1,992	2,229,700	54,994	3,301	3,650

As well as Twitter, Grass10 also have a presence on Facebook in the form of the Grass10 PastureBase Ireland Facebook group. This is a new initiative started in April 2020. The reason for establishing a Facebook group was to build a sense of community around growing more, grazing more, and earning more through a different platform. Unlike Twitter where the content can get diluted, the Facebook group is uniquely grass focused and allows more contact time between Grass10, PastureBase Ireland and the group members. This increases the chances of the farmers focusing on and understanding timely grazing messages. It allows Grass10 and PastureBase to post the latest updates, videos, advice and events. Members are encouraged to ask questions, and share their experiences and facilitate learning between group members. A total of 600 members joined within the first week. As of late 2020, 2,400 members are now in the group. Prior to the Facebook group, Grass10 was promoted on Facebook through the Teagasc corporate account managed by Teagasc PR department.

Grass10 is also promoted through Instagram through the Teagasc corporate account. The video produced on the winner of the Grassland Farmer of the Year (GFOY) competition in 2019, Bryan Daniels, was viewed over 18.5K times on the day he took over the Teagasc Instagram account.

During April 2020 in absence of the on-farm open days, the Grass10 GFOY Winners Bryan Daniels and Paudie O'Brien took over the running of the @TeagascGrass10 Twitter account. This was a chance for them to tell their stories and why utilising more grass was helping them reach their goals. The analytics are presented below in Picture 1 and Picture 2.

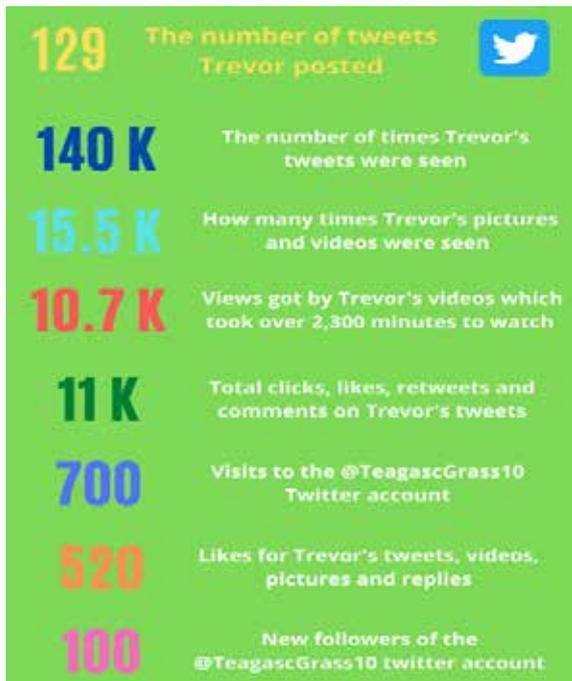


Picture 1. Bryan Daniel's Twitter



Picture 2. Paudie O'Brien's Twitter

Given the success of these on line events, similar events took place during June, July and September with other GFOY winners including Trevor Boland (Suckler Beef Category Winner), Mike Bermingham (Dairy Category Winner) and John Trant (Young Farmer Category Winner). Some of the analytics are presented below in Picture 3 and Picture 4.



Picture 3. Trevor Boland's Twitter



Picture 4. Mike Bermingham's Twitter

Grass10 Videos

Grass10 have been very active in video creation. To-date there are over 100 videos published on Youtube through the Teagasc corporate and PastureBase Ireland accounts. The breakdown of the video topics and average number of views each received is outlined in Table 3.

Table 3. List of videos produced during the Grass10 campaign

Video Topic	No. Videos	No. views
Autumn grazing management	10	380
Clover	3	849
Drought management	4	952
Dairy-Calf to Beef	1	342
Grassland Farmer of the Year	29	1,353
Grass course testimonials	6	620
Grazing infrastructure	4	2,771
Mid-season grazing management	8	870
PastureBase	5	139
Reseeding	11	418
Soil fertility	2	1,392
Spring grazing management	17	843
Sustainability	1	312
Total videos & views	101	94,218

Grazing focus events

Over the last few years, Grass10 in conjunction with the advisory service has arranged a series of on-farm events in spring, summer and autumn to promote the grazing message. Farmers volunteer their farm to host grazing events during key times in the grassland calendar (e.g. early spring). Often the weather conditions and workload can be challenging at the time of these events, but it is essential for the farmers and wider industry to observe the key management decisions, grazing skills and animal performance during these periods. The Grass10 campaign is extremely grateful to all the farms that opened their gates to allow other farmers come onto their farm and experience excellent grazing management in operation in some of the most challenging but important periods during the grazing season.

Teagasc Open days

Many Teagasc Open Days were held during the Grass10 campaign. These include Moorepark 2017, Grange 2018, Athenry 2018, Moorepark 2019 etc. During these events grazing demonstrations were developed by Teagasc research staff in collaboration with the Grass10 team. These demonstrations provided a platform to exhibit excellent grazing management by having animals graze the correct pre-grazing yield and grazing the sward to the appropriate post-grazing height, thereby ensuring excellent grass quality for the next rotation. Both advisors and farmers took small groups (15-20) of people through these demonstrations to display and discuss grazing management.



Dairy/Beef/Sheep podcasts

The Grass10 team have collaborated to use the Dairy Edge podcast as a platform to broadcast the Grass10 messages out to industry and farmers. A mixture of the Grass10 team and Grassland Farmers of the Year farmers, feature regularly on the podcast to deliver key grassland messages.

The Dairy Edge is Teagasc's weekly dairy podcast for farmers. This podcast is presented by Emma-Louise Coffey. The podcasts cover the latest information, insights and opinion to improve dairy farm performance.



<https://www.teagasc.ie/animals/dairy/the-dairy-edge-podcast/>

More recently, the Grass10 team has collaborated with Beef Edge podcast presented by Catherine Egan - www.teagasc.ie/thebeefedge

Building capacity

A key aspect of building capacity was to increase the usage of PastureBase Ireland by advisors and farmers. Central to this, was the establishment of a PastureBase Ireland support team to lead and support the roll-out of PastureBase Ireland website. Training workshops were organised to increase the technical capacity and equip users/influencers to increase their usage of PastureBase Ireland.

Training on PastureBase Ireland

The Grass10 team provided training to all advisors/professional users to ensure that all were equipped to deliver a data driven grassland advisory service to farmers. The use of PastureBase Ireland allows for precision grassland management with decisions informed by farmer measurement and identified decision rules. A PastureBase Ireland user can become part of an on-line community with access to powerful resources – such as advisor support, research backed advice, decision support tools – to help them to maximise their grassland production and utilisation, and ultimately their farm performance, profitability and sustainability. A significant benefit to a user is the support offered by the Teagasc Advisor. The Grass10 team have carried out PastureBase training nationally during November, December & January in 2017, 2018 and 2019. These training events were carried out in Teagasc offices throughout the country. Most of the training sessions were open to members of the public to attend and the training sessions for specific grass groups/grass courses were also provided. Feedback from the training was positive and we can see an increase in PastureBase usage in this period.

Grass10 courses

While building the capacity of the various service providers is important, it is equally important that the capacity of individual grassland farmers be developed by Grass10. A significant number of farmer training courses were delivered over the last two years and the venue for these courses was on farm using the concept of a 'Grazing Coach'. The aim of these training courses was to up-skill farmers in best practice in grassland management and to enable more farmers to improve their grassland management decision making.

The Grass10 courses commenced in January 2019. The purpose of these courses is to train farmers to measure grass efficiently and make correct grassland management decisions based on the grass measurement obtained. Best practice in terms of grazing infrastructure, soil fertility and reseedling were also addressed as part of these courses. The courses took the Grazing Coach format, where grass course members attend the same farm every month and monitor grazing decisions and performance throughout the year. The Grazing Coach is alternated every year so that farmers get to visit a different farm every year. The Grazing Coach selected is a farmer who wants to learn, but has the potential to improve grass production and grazing efficiency on the farm. This way, farmers can see the difference that grass measuring and better decision making can make in terms of cost savings, increased output, improved sustainability and labour efficiency. Every course selects a day in the month to meet (e.g. 1st Thursday of each month) so that farmers can incorporate the courses into their routine. Here is one farmer's feedback on partaking in a Grass10 grazing course:

“It has afforded me the opportunity to grow better grass, grow more grass, have my cattle move into better quality grass and to spot earlier, deficiencies and surpluses in grass.”

Tommy Murphy, Suckler Farmer, Farnanes, Co. Cork

Some other feedback on the Grass10 courses and on grass measurement includes:



“The quality and quantity of the grass grown and used on our farm is one of the main drivers of profit. Grass measuring is the key management tool that lets us achieve this.”

Bryan Daniels, Overall & Sustainable Farming Grassland Farmer of the Year 2019

“Grass management is key to a simplified and successful suckler and beef farm. Grass measurement is the next step for farmers to take.”



**Trevor Boland
Suckler Grassland Farmer of the Year 2019**



“Grassland Management is like a jigsaw, it’s only when you put all the pieces together that it makes sense!”

**Tomás O’Leary
Sheep Grassland Farmer of the Year 2018**

Table 4 outlines the number of farmers who took part in Grass10 courses in 2019 and 2020 plus their engagement with PBI compared to 2018.

Table 4. Level of grass production and grass measurement for the grassland farmers participating in the Grass10 courses in both 2019 and 2020			
Grass 10 Total Courses	2018	2019	2020
Number of courses	N/A	42	42
Number of farmers	701	701	701
Per cent of farmers with 20 + grass measurements	20%	37%	55%
Number of grass measurements on 20+ farms	35	33	31
Total grass production (kg DM/ha)	10,330	12,163	12,119
Grazing grass production (kg DM/ha)	8,947	10,056	10,162
Number of events/paddock/year	6.5	6.9	7.0
Number of grazing events/paddock/year	6.0	6.4	6.4
Pre-grazing yield (kg DM/ha)	1,491	1,571	1,587

The level of grass production achieved is similar to the PBI average. In particular, the average level of pre-grazing yield is on target. This is a very good indicator of the level of grazing management being achieved. Entering the correct pre-grazing yield enables a very high level of animal performance to be gained but also allows the grazing animal achieve the correct post-grazing height. Leaving paddocks well grazed out ensures high quality pasture to be grazed in subsequent rotations. The proportion of grassland farmers completing greater than 20 measurements over the two years increased from 20% to 55%; additionally, grass production increased from 10.3 t DM/ha to 12.1 t DM/ha.

Table 5 outlines the grass production and level of grass measurement for both the dairy and drystock enterprise, separately. The level of measurement and the intensity of measurement are much greater for 2020 compared to 2018 and 2019. Both the level of grass production and the number of grassland measurements were greater in the dairy than the drystock enterprise farms. The level of pre-grazing yield was similar for both enterprises.

Table 5. Grass production and level of grass measurement for Grass10 course attendees in 2019 and 2020

Grass10 Dairy Courses	2018	2019	2020
No. of courses	N/A	32	32
No. of farmers	551	551	551
Per cent of farmers with 20 + grass measurements	25%	44%	66%
Number of grass measurements on 20+ farms	35	33	31
Total grass production (kg DM/ha)	10,355	12,223	12,227
Grazing grass production (Kg DM/ha)	8,990	10,142	10,282
Number of events/paddock/year	6.5	7.0	7.1
Number of grazing events/paddock/year	6.0	6.4	6.5
Pre-grazing yield (Kg DM/ha)	1,498	1,585	1,581
Grass10 Drystock Courses			
No. of courses	N/A	10	10
No. of farmers	150	150	150
Per cent of farmers with 20 + grass measurements	4%	9%	15%
Number of grass measurements on 20+ farms	27	28	28
Grass production (kg DM/ha)	9,480	11,258	9,865
Grazing grass production (Kg DM/ha)	7,464	8,537	7,676
Number of events/paddock/year	5.0	6.2	5.7
Number of grazing events/paddock/year	5.0	5.4	5.0
Pre-grazing yield (Kg DM/ha)	1,493	1,580	1,535

*Grass values in the above table are from farms which grew between 7 and 20 tonnes grass dry matter per hectare and recorded over 20 grass walks in each year.

Grassland Farmer of the Year Competition

The Grassland Farmer of the Year was launched in 2017 to coincide with the Year of Sustainable Grassland supported by the Department of Agriculture, Food & the Marine, in collaboration with other stakeholders which include Allied Irish Bank, FBD, Grassland Agro and the Farmers Journal including Teagasc as part of the Grass10 campaign. The objective of the Grassland Farmer of the Year Competition is to promote grassland excellence for all Irish livestock farmers in an environmentally sustainable manner.

Teagasc research indicates that grass utilisation can be increased significantly on farm. With this background Grass10 launched a grassland competition to recognise those farmers who are achieving high levels of grass utilisation in a sustainable manner. Practices used by these farmers to increase grass production and utilisation, include soil fertility management, sward renewal, grassland measurement and improving grazing infrastructure are judged in this competition and disseminated to other farmers as a result.

Irish agriculture faces serious challenges in trying to meet Greenhouse Gas and Ammonia emissions targets. This competition aims to raise awareness on the critical role that grass plays in supporting dairy and livestock production in a sustainable manner. These sectors possess a significant cost advantage in the form of an environmentally sustainable, grass based production system. It is this grass based system that provides Ireland with its comparative advantage in increasingly competitive international markets, but there is room for improvement. The competition aims to encourage farmers, across the country and across enterprise to optimise the use of the valuable resource that grass is on Irish farms.

The competition has seven categories with an overall prize fund of €30,000. Enterprise awards include;

- Dairy
- Sheep
- Beef Suckling and
- Non-suckling categories.

Other categories include;

- Disadvantaged Land winner
- Sustainable Farming winner
- Young Farmer (under 30 years) category winner. The young farmer category can include entrants that are farm managers or farming in a collaborative arrangement.

The overall winners for the first three years of the competition are as follows:

2017: Overall Winner and Dairy Award

Eddie & Denis O'Donnell,
Golden, Co. Tipperary



2018: Overall Winner and Dairy Award

John Macnamara,
Hospital, Co. Limerick



2019: Overall Winner and Sustainable Farming Winner

Bryan Daniels,
Kilmoganny, Co. Kilkenny



Key performance indicators

An indicative list of key performance indicators (KPI's) for the Grass 10 campaign are listed in Table 6. A key aspect of the Grass10 campaign is that the success of the programme is measurable. So at the outset of the programme, a clear objective was set out to be able to quantify the uptake of the initiatives at farm level.

Table 6: Suggested key performance indicators for the Grass10 campaign

Suggested KPI's: Campaign Performance Measurement (Outputs)

- No. of grassland farmers using PastureBase Ireland
- No. of farmers completing 20 or more grass cover measurements/year
- No. of grazings/paddock
- Grass10 grazing courses
- Level of website/social media usage
- No. of Grass10 newsletter publications
- No. of training events completed
- Soil Fertility Improvement
- Level of grass grown and utilised/ha
- Animal output/ha

In 2019, over 4,000 individual commercial farms recorded at least one grass measurement or more on PBI. Table 7 outlines the number of grassland farms that have completed 20 or more grassland cover measurements over the period 2016-2020. The largest increase occurring in 2020; most of which were on dairy farms.

Table 7. Number of farms (Dairy & Drystock) who have completed 20 or more grass measurements annually over the last five years on PBI

Year	Dairy farms	Drystock farms	Total
2020	1623	116	1739
2019	1014	106	1120
2018	731	93	824
2017	739	70	809
2016	659	49	708

Table 8 shows the KPI for both dairy and beef enterprises for both 2016 and 2019. Over the period grass utilisation per ha increased by 0.3 tonnes (7.7-8.0 tonnes of DM/ha) on dairy farms, while it remained static at 5.9 tonnes on cattle rearing farms. This corresponds to a grass production of 7.9 and 10.7 tonnes of DM/ha on cattle rearing and dairy farms in 2019. The estimated 10.7 tonnes grass grown on dairy farms is much lower than the 13.6 tonnes of DM/ha recorded by dairy farms measuring on PBI, indicating that there is still significant potential to grow more grass on the average dairy farm. There was a significant improvement in soil fertility over the period with about 20% of soils now at optimal soil fertility compared to 10% at the start of the Grass10 campaign. Additionally, the level of grass reseeding significantly increased as indicated by the increase in grass seed sales. There was a 14% increase in milk solids/ha (744 vs. 851 MS/ha), while there was a much smaller increase in carcass output /ha.

Table 8. Key performance indicators for both dairy and drystock enterprises 2016-2019

Grass10 Campaign KPIs for Industry Performance		Baseline 2016	Targets 2020	Actual 2019	Source
Grass Production	<u>Grass Grown (t DM/ha)</u>				
	Dairy	10.3	13	10.7	NFS
	Cattle rearing	7.9	13	7.9	NFS
	<u>Grass utilised (t DM/ha)</u>				
	Dairy	7.7	10	8.0	NFS
	Cattle rearing	5.9	10	5.9	NFS
Soil Fertility	<u>No. of grazings/paddock (on grazing platform)</u>				
	Dairy	7.5	10	7.1	PBI
	Drystock	5.1	10	5.2	PBI
Soil Fertility	Soils with pH > 6.2	44%		54%	Soils Database
	Soils index 3 or 4 for P	37%		50%	
	Soils index 3 or 4 for K	42%		58%	
Reseeding	Grass seed sales (tons/year)	2,800	3,500	3,750	DAFM
	White clover sales (tons/year)	150	200	200	DAFM
Animal Output	Dairy (kg MS/ha)	744	1,000	851	NFS
	Drystock (kg carcass/ha)	230	265	241	ICBF

NFS = National Farm Survey. PBI = PastureBase Ireland. Baseline establishment data sources include NFS, PBI, Enterprise Roadmaps, DAFM, ICBF, Teagasc.

Acknowledgments

Grass10 wishes to acknowledge the support of our industry stakeholders in the Grass10 Campaign.



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



Sincere thanks to all those who made the Grass10 campaign successful.

Teagasc PR Team

Host farmers of events & Grass10 Courses

Grassland Farmer of the Year Judges

Grassland Farmer of the Year Applicants

Teagasc Research, Specialist & Advisory Staff

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Notes

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