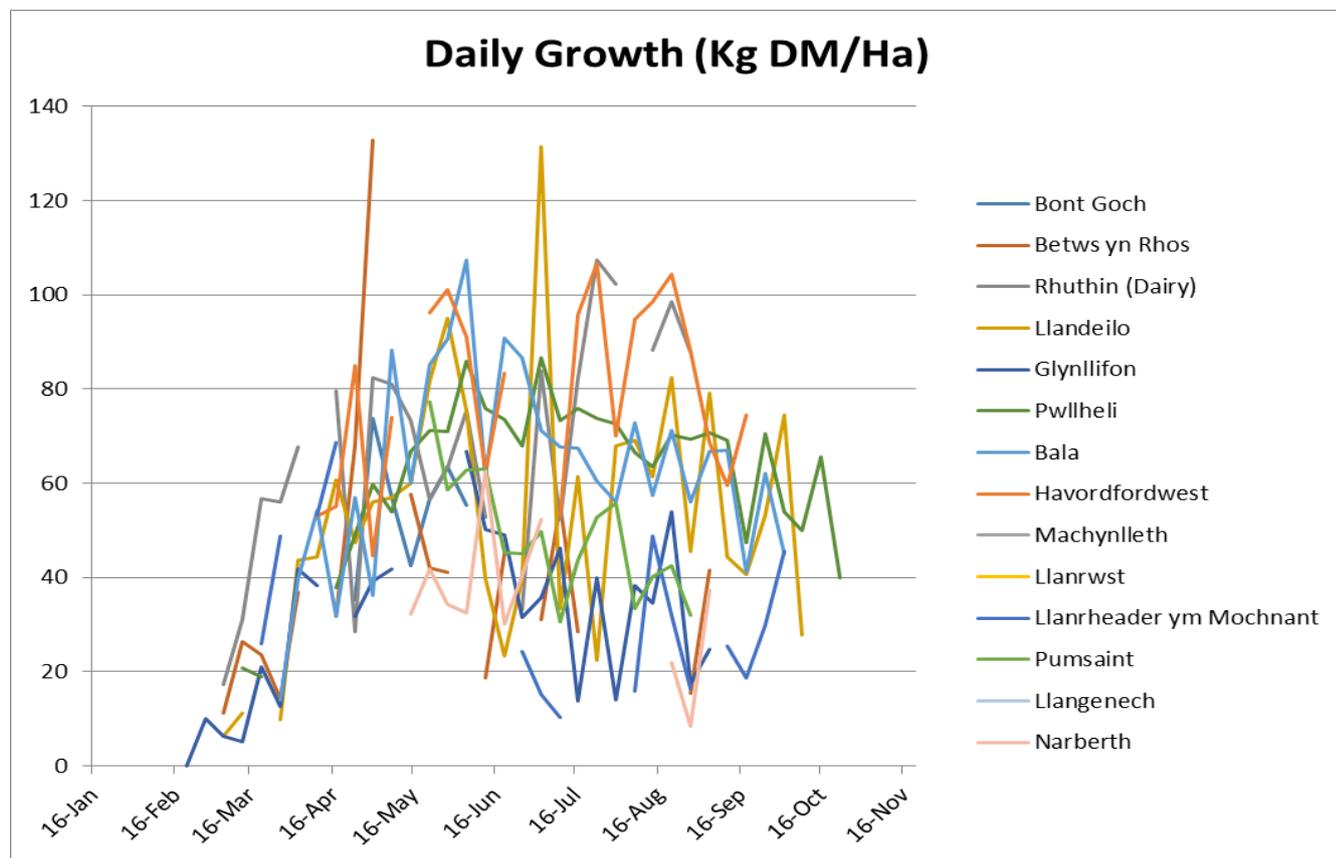


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1.0 Summary

- The aim of the Pasture Project is to highlight to encourage livestock farmers in Wales to utilise their cheapest feed – grass. The project has completed its second year.
- 16 farms from across Wales were tasked with measuring grass growth and utilisation through the 2017 growing season.
- 14 of which were able to gather consistent robust data throughout the growing season



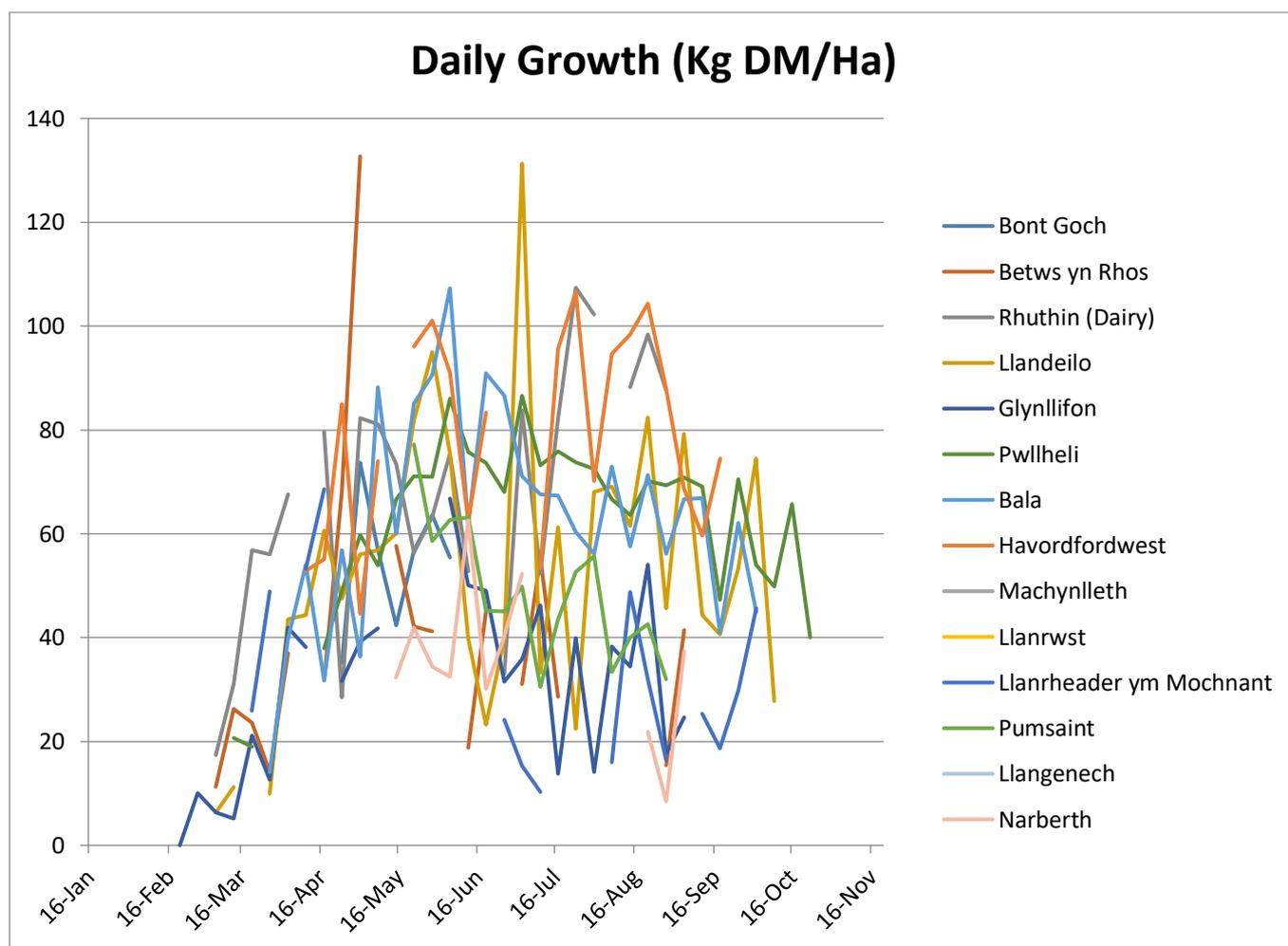
- The project has increased the focus on the value of grass and grazing
- Highlighted areas for improvement in terms of data collection and using that information to improve grass yields and utilisation
- The key finding of the 2nd year of the project was the variation in grass yields between those rotationally grazing and those set stocking. The potential for increasing grass growth and maximising utilisation is huge – the best farm grew over 60% more grass DM than another.
- The environmental benefits of increasing grass utilisation and reducing concentrate feed rates are clear, however production should not be sacrificed as this will have a negative impact on emissions per litre of milk or kg of meat.
- Climate change can create opportunities for extended grazing or risks of reducing grass utilisation in poor conditions. It is important for farmers to be aware of the potential risks to production and pollution.
- The project is relevant to all grassland farmers particularly those that are able to graze rotationally.
- Increasing grass growth and utilisation by 1t DM/Ha is worth £197/ha for Welsh grassland farmers.

2.0 Pasture Project Review

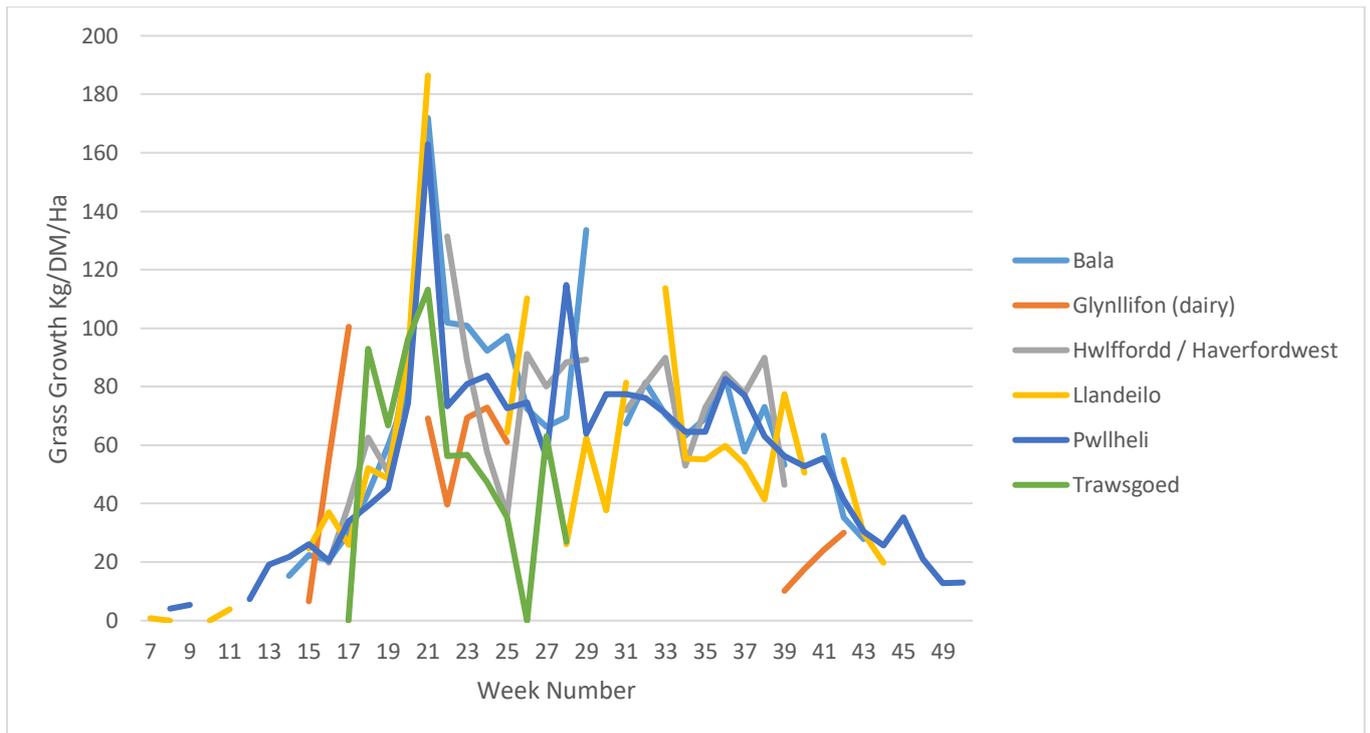
2.1 Comparable farm data

16 farms were enrolled on the Pasture Project in 2017, of which 14 collected consistent data, 2 farms didn't submit data, a further 2 only submitted 4 weeks data because they run a set stocking system and were not seeing the benefits. In order to be robust the farms must collect data on a weekly basis throughout the growing season.

The graph below details the daily growth in kgDM/Ha on the farms with robust data.

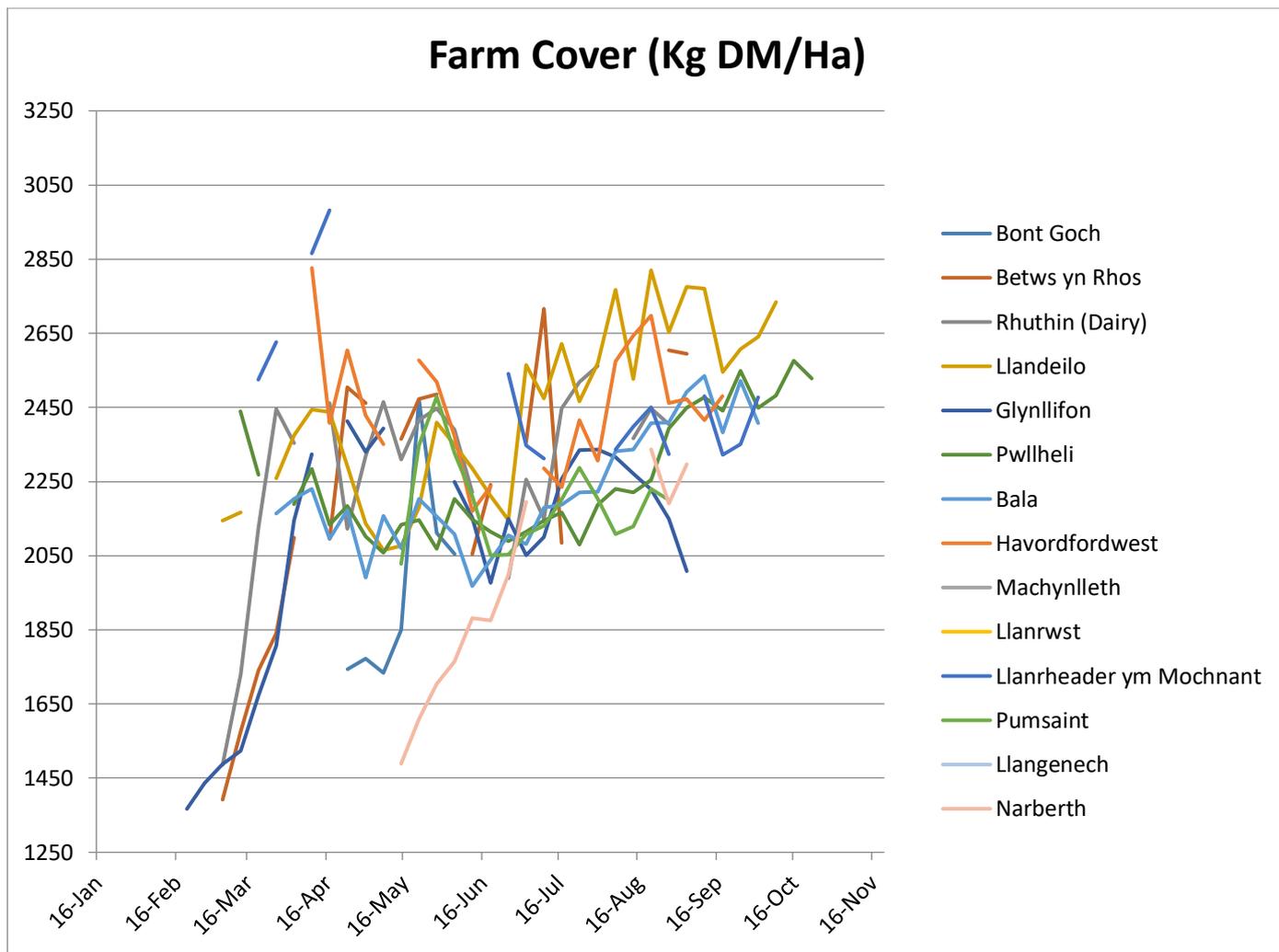


Grass growth generally accelerated in early April and peaking in early May. It is interesting to note that the increased number of farms over 2016, bringing with them a greater diversity in terms of system and geography has led to more sporadic results. The 2016 results are detailed below, showing a much clearer growth curve.



It could be assumed that the farms that initially took part in the project in 2016, were likely early adopters, already measuring grass and aware of the potential benefits. The addition of more beef and sheep farms in 2017, who as sectors tend to undertake less grass monitoring with very few operating rotational grazing strategies, has meant that the grass growth curves are not as defined. This represents an opportunity for the lower performing farms to increase grass yields.

The graph below details the average farm cover in kg DM/Ha throughout the 2017 season.



The chart shows that farms had very different starting positions in terms of farm cover, this is likely due to varying strategies in terms of winter stocking and timing of removal. As commented in the end of year review published on the Farming Connect website 'grass growth continued well into October, however a very wet autumn meant clean grazing and any final late cuts of silage proving difficult to achieve'. The result is that average closing covers were higher than desirable.

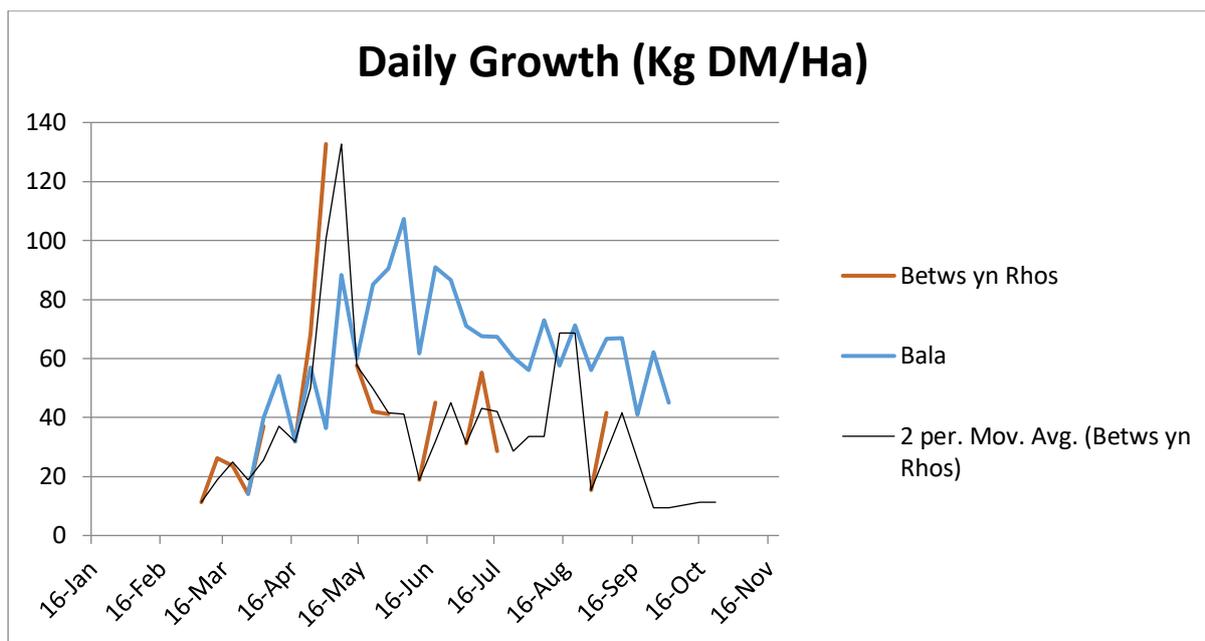
2.2 KPIs

The main KPIs for the project are:

- Daily grass growth
- Average farm cover
- Stocking rates (LUs)

It is important to set strong KPIs which are easily measurable and reputable across species.

The most overarching KPI is tonnes of DM/ha per year. The table below details the weekly growth of 2 farms- Bala and Betws yn Rhos.



Bala is an established rotational grazing spring calving dairy farm, Betsws yn Rhos is a beef and sheep farm measuring grass growth for the first year. Clearly the potential of Betsws yn Rhos as a grass growing farm is evident from its early high peaks of daily grass growth, however sub optimal grazing throughout the season has effected overall grass growth at 9.39tDM/Ha compared to 15.5tDM/Ha at Bala – 65% higher yielding.

3.0 Project Review

3.1 Aims of the project

The aim of the project is to reduce feed costs through increasing the yield and utilisation of pasture.

Grazed grass (managed well) is a farms cheapest feed. The challenge is to match supply (grass growth) with demand (animals DMI) to maintain yields and fertility whilst minimising waste and maximising grass yield.

The project requires weekly grass measurement with a plate meter and monitoring on Agrinet.

The ultimate aim for the farms is to increase the knowledge of key staff in grass and grazing management. This information should then be disseminated to the wider industry.

Year 2 of the project has successfully introduced a wider spectrum of farms, meaning that the information can be disseminated amongst a wider audience and increase grassland utilisation in Wales.

3.2 SWOT analysis

STRENGTHS	<ul style="list-style-type: none"> Generates clear comparable data Empowers the farmer/manager/herdsman to make decision based on data Increases grass utilisation
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WEAKNESSES	<p>Agrinet for set stocking systems</p> <p>Difference of plate metering techniques</p> <p>Robustness of data collection</p>
OPPORTUNITIES	<p>Circulate findings to increase uptake of monitoring</p> <p>Increase grassland output through higher uptake of rotational grazing and effective use of fertilisers.</p> <p>Consider use of more efficient tools – rapid plate meter</p>
THREATS	<p>Limited data reduces potential impact</p> <p>Climate change – unpredictable weather</p>

3.4 Potential for project on other sites

A project to define the financial benefits of rotational grazing for beef and sheep farmers would potentially lead to a much greater uptake.

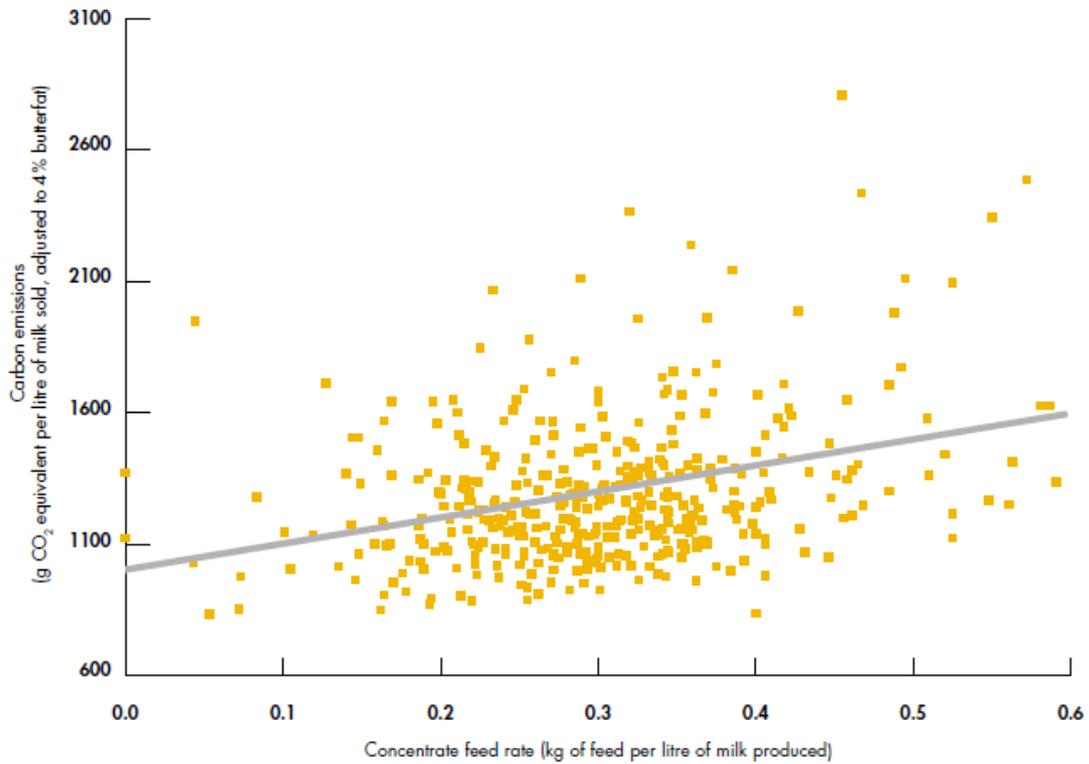
Increased grass monitoring on high yielding dairy farms to look at effects of differing buffer strategies and their impact on grassland utilisation would be a great step to increase grass utilisation on these farms.

3.5 Sensitivity analysis

Item	Change	Effect on profit
Grass utilised per year	±1t DM/Ha	±£100/Ha
Nitrogen price	±£50/t	±£36.20/Ha

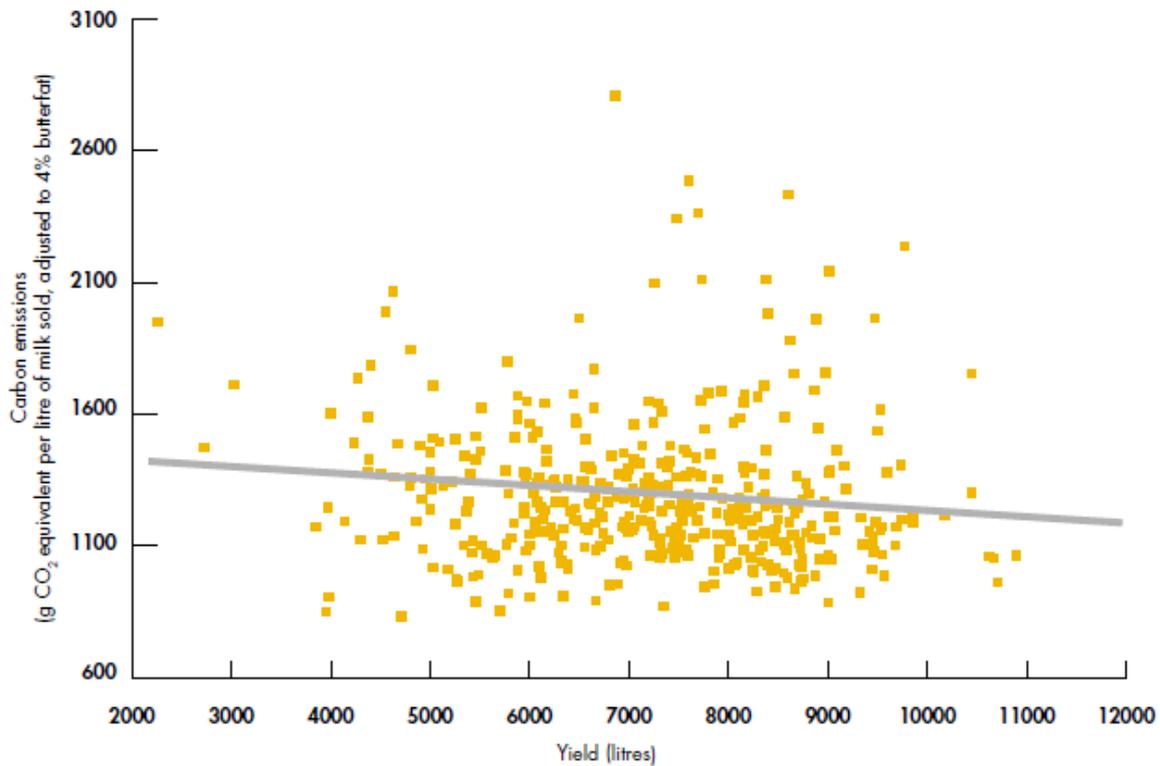
3.6 Environmental impact

Maximising grass utilisation on Welsh dairy farms will have a positive impact on reducing carbon emissions on a per litre of milk basis. The graph below clearly details the effect of concentrate feed rates on carbon emissions.



By increasing grass utilisation the Welsh dairy industry can in turn reduce the amount of concentrates fed.

We must also consider milk output from a grazing point of view, if too much milk is sacrificed we will see a negative impact on carbon emissions per litre.



When considering the environmental impact of grazing strategies, milk yield must be considered. The same can be said for other livestock sectors, if growth rates are sacrificed via sub optimal nutrition and conditions it will have a negative effect on the carbon cost of red meat production.

Climate change

Unpredictable and changing weather patterns are increasingly common in Wales, this creates both opportunities and threats for grazing. In simple terms unseasonal dry weather will facilitate an extended grazing season and by contrast poor weather in the summer could reduce grazing efficiency.

The unpredictable nature of weather patterns will create grass budgeting issues. It is important to have a strategy for extreme weather conditions, for example if heavy rain is causing ground damage and potentially pollution a farm should have a protocol for using specific low risk paddocks or housing.

4.0 Evaluation

The project built on the first year's findings by increasing the weight of evidence, the value of rotational grazing and regular grass monitoring is evident. Increasing the spectrum in terms of sectors and geography led to some interesting findings, adding weight to the value of rotational grazing systems compared to set stocking.

The project went some way to meeting the objectives of the pasture project. The results should be used as a baseline to improve performance on individual farms this year, through the strategic use of nutrient planning and soil testing.

The findings should be disseminated within the industry to encourage more stock farmers to undertake routine grass growth monitoring.

The potential impact on an individual business is to increase the herd/flock margin through increasing stocking rates and/or reducing purchased feed. It can clearly highlight the variability between paddocks, this information should then be utilised and disseminated among key staff to improve grassland and herd performance on an individual farm basis.

The results of the 2nd years plate metering can clearly be a lesson to those within the industry who have never plate metered. The variability of pasture should be published with a clear action plan of how to improve performance.

Clearly for farmers it is important to see the process in action, meaning a farm walk would be useful. Circulating information via social media would engage more young/tech savvy farmers. Perhaps the figures should be loaded onto Twitter as weekly grass measurements are taken, this will encourage more farms to attempt plate metering. Sharing the resource of a plate meter between a group of local farmers should also be encouraged if the capital cost is putting them off.