WELSH PASTURE PROJECT

2022

Welsh Pasture Project

End of year report 2022

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Precision Grazing Ltd - 22-11-2022

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1.0 INTRODUCTION

The Welsh Pasture Project provides regular information on regional pasture growth rates and pasture quality to enable livestock farmers to make informed, proactive grazing management decisions. It involves 23 dairy and 26 beef and/or sheep farmers who are measuring their pastures and providing feedback on growth trends.

With Wales' reliable rainfall, pasture is our "competitive advantage" in the local and global milk and red meat market. It is the most sustainable source of feed for our livestock and, when managed well, it is easily the most profitable.

The aims of this project are to:

- ➜ Encourage Prosper from Pasture members to measure pasture regularly
- ➜ Record regional pasture growth rates and share with all Farming Connect members
- ➜ Understand the impact of weather on pasture production
- ➜ Understand the impact of management on pasture production
- ➜ Assist, share and develop decision making resources for grazing management

2.0 METHOD

The method was designed to provide regular, reliable and relevant results for each region:

- Wales was divided into eight regions to provide an even representation of soil type and land class.
- A minimum of two dairy and three beef and/or sheep farmers were selected from each region, representing the typical livestock enterprises and pasture types.

The map displayed shows the different regions within the project, with each monitoring farm marked in each region.

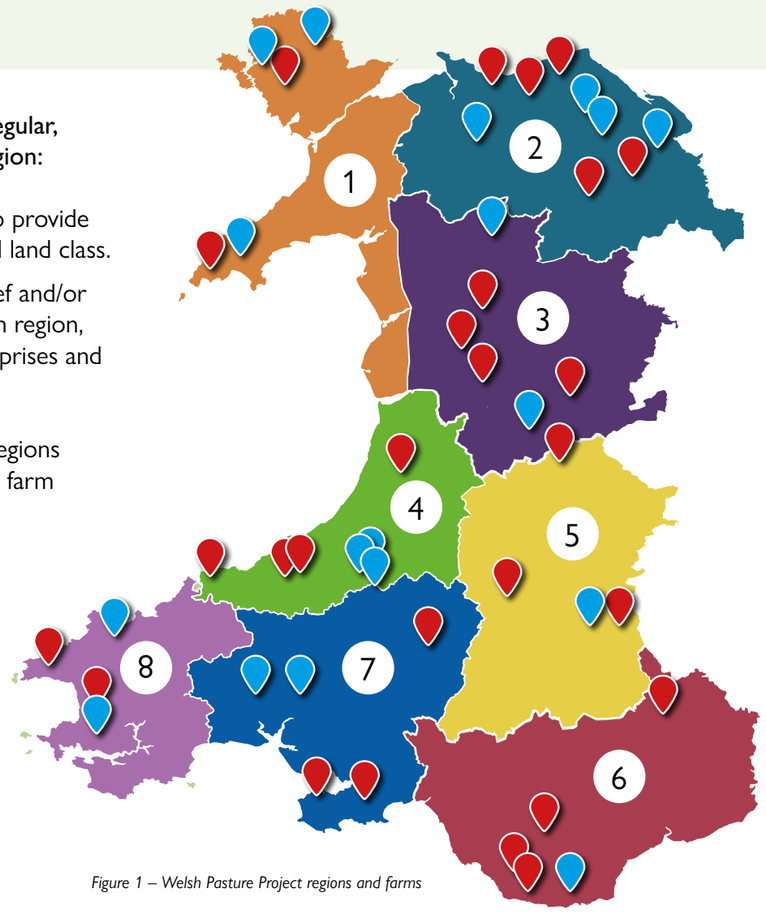

Figure 1 – Welsh Pasture Project regions and farms

2.1 PASTURE MEASUREMENT

All farmers used an electronic rising plate meter, which was calibrated and fitted with a plastic plate for consistency.

The standard UK equation for dry matter estimate was used:

Pasture Cover (kgDM/ha) = 125x + 640

(x = compressed pasture height in 0.5cm)

2.1.1 MEASURING TECHNIQUE

- Each field or paddock was measured with a minimum of 30 "plonks" evenly spaced across the field in a "W" shape or a diagonal line.
- The farmer followed the same route for each measurement.

2.1.2 MEASUREMENT FREQUENCY

- Dairy farmers measured their grazing platform weekly or bi-weekly.
- Beef and/or sheep farmers measured a minimum of 20 hectares (ha) every fortnight.

2.2 RECORDING PASTURE COVERS

- Farmers entered their pasture cover measurements into Agrinet pasture management software. They then recorded any grazing or silage events.
- The number, weight and feed demand (from pasture) of the livestock grazing the area being measured was recorded.
- Any applications of manure or nitrogen fertiliser were recorded.

2.3 RESULTS

- Each week, the pasture measurements were downloaded and checked for accuracy with any anomalies being removed.
- An average, split into beef and/or sheep and dairy was then calculated for each region and for the country.
- The information was added to a map and management tips were provided by grazing consultants as well as experienced farmers within the group.
- Growth rates and grazing management notes were shared on the Farming Connect website and social media channels.

3.0 EXPERT FARMERS

As part of the project, we have four expert grassland managers, who have been giving an insight into their system and timely decision-making information over the past year.

You can find updates and a range of materials from podcasts to short videos from the expert farmers on the Farming Connect website

Richard Rees
Beef and sheep farmer
Powys

Andrew Rees
Dairy farmer
Pembrokeshire

Peter Storrow
Beef and sheep farmer
Pembrokeshire

Dafydd Evans
Dairy farmer
Denbighshire

3.1 PROJECT FARMERS PERSPECTIVE

3.1.1 ANDREW REES – DAIRY FARMER – PEMBROKESHIRE

How has the growing season of 2022 been like compared to previous years?

Very challenging! It started off well due to us carrying over a good cover of grass from last winter. Grass growth peaked in late May/start of June. From mid-June onwards, grass growth basically ground to a halt until rain eventually came in late August.

We struggled to build enough of an autumn wedge which has resulted in cows now having to be housed at night. We have used less nitrogen fertiliser as planned, around 50kgN/ha, mostly applied through the Tow and Fert machine as a foliar fertiliser. We have grown around 8tDM/ha this year, which is considerably down on 10-12tDM/ha in previous years.

What improvements have you made this grazing season that have had a positive impact on your system?

The dairy herd was mainly left unchanged, but we did implement changes for the young stock and their grazing by really trying to push feed ahead of them on a 45-60 day rotation. We bale grazed the R2 heifers for a few weeks during the worst of the heat to keep grass for our R1 heifers. The dairy herd was set on a 45 day rotation. We filled in the feed gap with additional forage instead of filling cows up on too much concentrate to make sure we looked after our cows' gut health.

How has measuring pasture aided your decision making?

Some weeks, we felt that there was very little point in measuring when grass growth was virtually zero, but as soon as the rain came, we saw a big rise in grass growth, therefore, measuring became important then in enabling us to cut back on supplementary feed as soon as possible.

How would you recommend farmers new to measuring pasture go about making a start?

Just make a start, be clear on the purpose and why you are doing it. If you don't feel confident, don't be afraid to ask other farmers how and why they have done something and learn from them.

What do you do at the end of the year once you have measured for a whole grazing season?

We try to identify trends in terms of nitrogen usage and rainfall on our grass growth to see if some paddocks are lagging behind compared to others under the same management and environmental challenges. This year was worse than 2018 in terms of grass growth and potential for stress, but we had learnt a lot from then and were able to quickly implement management strategies to make it as stress free as possible.

3.1.2 RICHARD REES – BEEF AND SHEEP FARMER – POWYS

What has the growth season of 2022 been like compared to previous years?

For me, it hasn't been too bad. The challenge for us was keeping quality in the pasture, but overall, it has been okay. Having a flat growth curve for most of the season has, if anything, been easier to manage. Last year's growth was around 8t and currently, so far, we are sitting at 6t with an expectation to hit 7t by the end of the grazing season.

We only used two bags of nitrogen for the swedes this year compared to 10-12t of nitrogen across the whole farm normally. We didn't creep feed lambs and had a definite reduction in spring ewe feeding, 3t compared to 10t. I estimate we will grow an average of 7tDM/ha this year.

What improvements have you made this grazing season that have had a positive impact on your system?

This year we raised our grazing residuals to help with the drought to around 2,000kgDM/ha instead of 1,500kgDM/ha. This I believe has helped with moisture retention but having no cattle on the farm made keeping pasture quality a challenge.

How has measuring pasture aided your decision making?

Following on from my decision to raise residuals, I was able to determine if this was having a positive effect on grass growth and gave me confidence in my decision making. Being able to make proactive management decisions instead of reactive ones was an advantage to help deal with the drought.

How would you recommend farmers new to measuring pasture go about making a start?

Keep it simple, plan out your walk ahead of time in order to make it as efficient as possible. I ensured that I made time to carry out a farm walk each week. This could be great family time as well, therefore it was time well spent. I used a plate meter which gave me consistent results and made it efficient.

What do you do at the end of the year once you have measured for a whole grazing season?

We will look back and compare with the previous year's results and make a start at planning our first rotation for the spring. We try to avoid reseeding where possible, but if we feel a paddock is underperforming, we will investigate why that is first and plan from there on the best course of action.

3.1.3 PETER STORROW – BEEF AND SHEEP FARMER – PEMBROKESHIRE

How has the growing season of 2022 been like compared to previous years?

Horrendous! In the past few years, we have been able to really push our stocking rate up, increase the arable area and minimise the amount of silage we make. But this year was completely different. Normally, we would get 3-4 weeks of slow growth, but this was unrelenting. Our most productive fields have yielded 6.5tDM/ha, others would be down at 3.5-4tDM/ha, I would like to see that figure closer to 10-11tDM/ha for our farm.

What improvements have you made this grazing season that have had a positive impact on your system?

Moving more towards herbal leys and cutting back on ryegrass in those mixtures is helping us here. We need deep rooting leys here because of our relatively shallow soils. 50 acres have now been sown as herbal leys and are looking great going into winter. Investment in our grazing infrastructure is also paying dividends in allowing us to shorten our grazing on time to one day moves if needed, allowing us the potential to grow more grass, meaning we have reduced our use of nitrogen fertiliser from 134kgN/ha to 48kgN/ha.

How has measuring pasture aided your decision making?

It's taken a lot of the guesswork out of management and provided an early warning system for when we are heading into a drought. As a result, this year we weaned 22 calves early (3.5 months old) to capitalise on a strong cull cow price and lower our feed demand quickly. Also, later on in the year, we weaned any cows with heifer calves at 5.5 months old, all in a bid to lower demand even further. Measuring also allowed us the ability to plan our autumn and winter feed budget and, as a result, we decided to graze a winter cover crop in August to help build a wedge of grass for autumn.

How would you recommend farmers new to measuring pasture go about making a start?

Have a go, time spent doing it will give you confidence in your grass' ability to carry the stock you have. It will give you much better clarity, the ability to plan and, all in all, save you money.

What do you do at the end of the year once you have measured for a whole grazing season?

Normally, we would use this data early on to decide when to stop grazing in order to provide a 120-day rest period, ready for the following spring. We also look for underperforming fields and usually bale graze these with the cattle with the aim to either reseed in the spring into a new pasture ley or in an arable crop.

We normally grow quite a bit of potatoes here and run a more intensive system with the cattle. But, this year has made me decide we need to look at lessening this area and lower our cost of production for the cattle by moving to outwintering as many cattle as possible, with the view for everything to be outwintered in the future.

3.1.4 DAFYDD EVANS – DAIRY FARMER – DENBIGHSHIRE

What has the growth season of 2022 been like compared to previous years?

We started the spring off with above average covers due to the mild winter we had last year. This allowed us to get cows out early and stop feeding silage early on. Throughout May and early June, we had good consistent growth, which kept up well with our demand of 70kgDM/ha/day without any real problems. From mid-June right through the summer, the farm did dry up very quickly which meant we had to then supplement the cows with 10kgFW/hd/day of silage to keep the cows full, as well as grazing some of our second and third cut silage paddocks. The dry weather was harsher this year but, for us, it was even more of a challenge as we hosted a large national event on the farm, which meant that 25% of our grazing block was allocated for that.

What improvements have you made this grazing season that have had a positive impact on your system?

This year, we concentrated on improving some of our grazing infrastructure to help our management and ease our labour. We concentrated on getting good, consistent mains electric power out to more of our paddocks to save carrying solar energisers round the farm which ensures our cows were staying in the breaks we were giving them. We also concentrated on better utilising our slurry stocks by applying with a trailing shoe spreader, which has paid dividends.

How has measuring pasture aided your decision making?

An important thing for us is being able to stop feeding silage as soon as possible in spring. Measuring gives us the confidence to cut this out of the diet earlier than if we were just going off our gut instinct. It also helps us to maintain quality on the grazing platform by showing if we have a bit of surplus to take out so that paddocks don't get away from us.

How would you recommend farmers new to measuring pasture go about making a start?

Agrinet is a big help for anyone starting out measuring pasture. It gives you a platform to easily monitor growth and demand and it's also helpful if you need some advice on how to manage your wedge, by allowing consultants or other farmers to log in remotely to provide advice over the phone.

What do you do at the end of the year once you have measured for a whole grazing season?

Because we're an autumn block calving herd, our demand in early autumn is quite low. We target this period to evaluate how our paddocks have performed over the season and identify any which are falling behind.

We would then usually reseed in order to have those paddocks performing at their potential by the spring.

How would you describe the 2022 grazing season in a few sentences?

It started off in a good place, which got us off to a great start, but it was a priority that we got out early to get on top of heavy spring covers we had carried through form last year. The summer was a challenge coupled with 25% of the platform being out of the rotation. But we do get dry summers down here, therefore we are slightly geared up for it. Pasture quality was variable across the farm and trying to find enough shade for the cows on very hot days was a challenge. Autumn growth has been brilliant and I need to keep an eye out that our autumn covers heading into winter aren't too big so we don't run into any problems come the spring. I estimate we grew 7tDM/ha this year where we would usually grow 10tDM.

4.0 2022 PASTURE GROWTH REVIEW

2022 has been a very challenging year for many across Wales, with the extended dry period through the summer months. The start of the grazing season saw higher than average pasture growth rates for both dairy, beef and sheep farms, with growth peaking in early May on the majority of farms.

The high pasture growth in spring was followed by a moisture deficit and, therefore, a drop in pasture growth rates across most of the country. Those on the coast and in the south and east of Wales were worst affected by the lack of rainfall, whereas farms in mid-Wales with heavier soil types experienced one of their best pasture growing years.

Many farms who experienced the dry conditions had to resort to supplementing animals with silage and/or hay as pasture growth rates were well below the feed demand. This meant using forage which had been made for winter. Alongside this, the dry weather forced plants to seed more rapidly, meaning some silage made in second and third cuts was of a poorer quality and lower in quantity.

Once the rain arrived, temperatures remained higher than average, allowing for good grass growth from September into early November. This has helped to enable some of the forage fed in the summer to be recovered, enabling additional silage to be made and increasing the pasture available for grazing, potentially delaying housing. However, recent heavy rain events during November have caused soil conditions to deteriorate and force some animals to be housed.

4.1 POTENTIAL FEED DEFICIT

Many farms carrying a high to moderate stocking rate have finished the growing season without sufficient feed on-farm for the winter period. Unless managed proactively, this could have a negative impact on animal welfare and farmer wellbeing, particularly if spring 2023 proves to be challenging (cold/wet).

4.2 PASTURE GROWTH CURVES

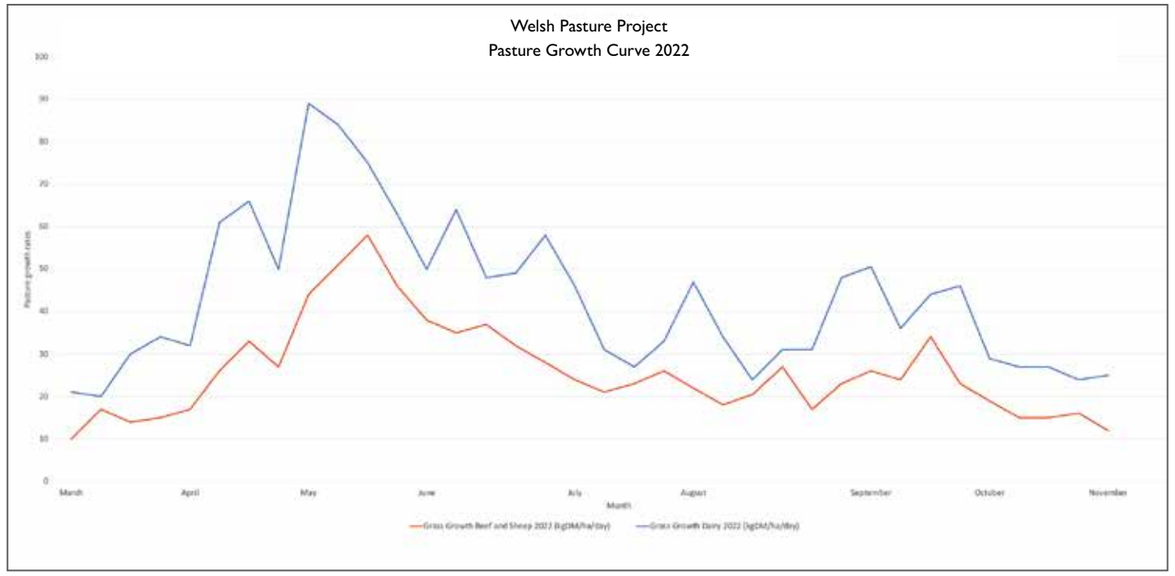

Figure 2 – 2022 Pasture Growth Curve for Beef, sheep and dairy

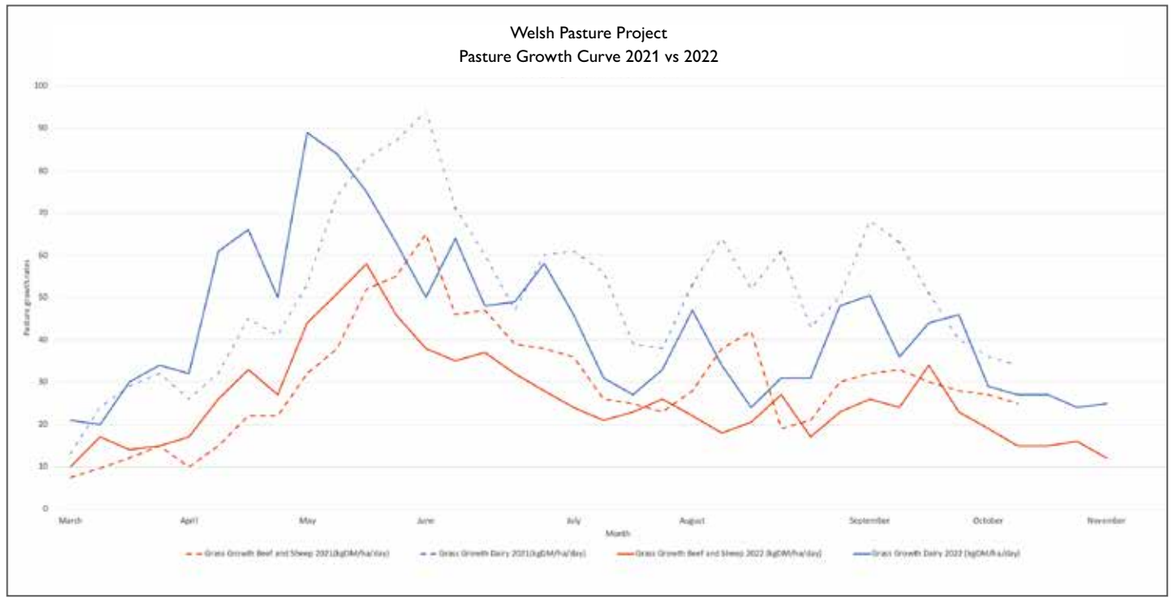

Figure 3 – Pasture Growth 2021 vs 2022 - Beef, sheep and dairy

4.3 REGIONAL PASTURE GROWTH CURVES

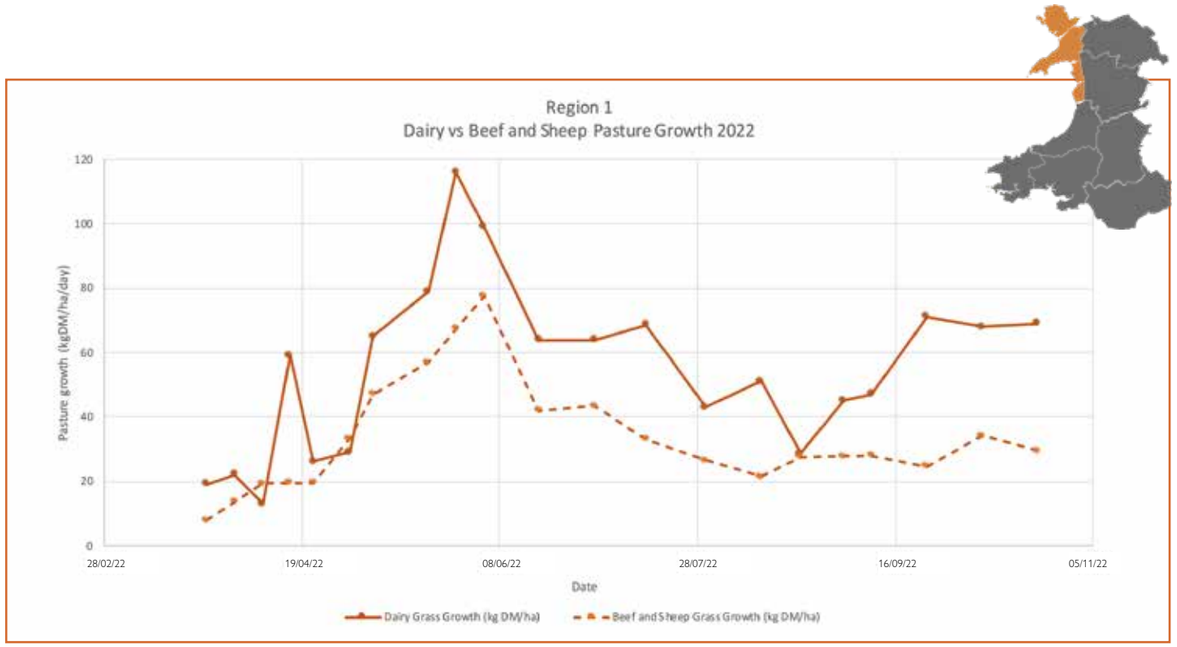

Figure 4 - Region 1 Pasture Growth 2022 - Beef, sheep and dairy

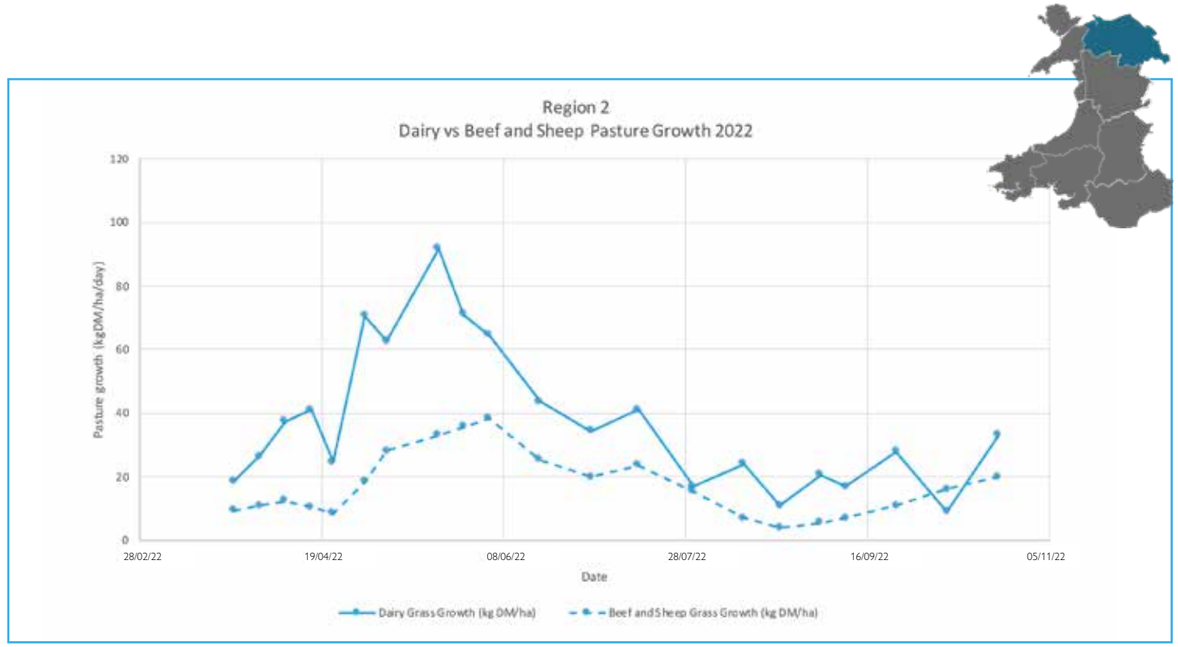

Figure 5 - Region 2 Pasture Growth 2022 - Beef, sheep and dairy

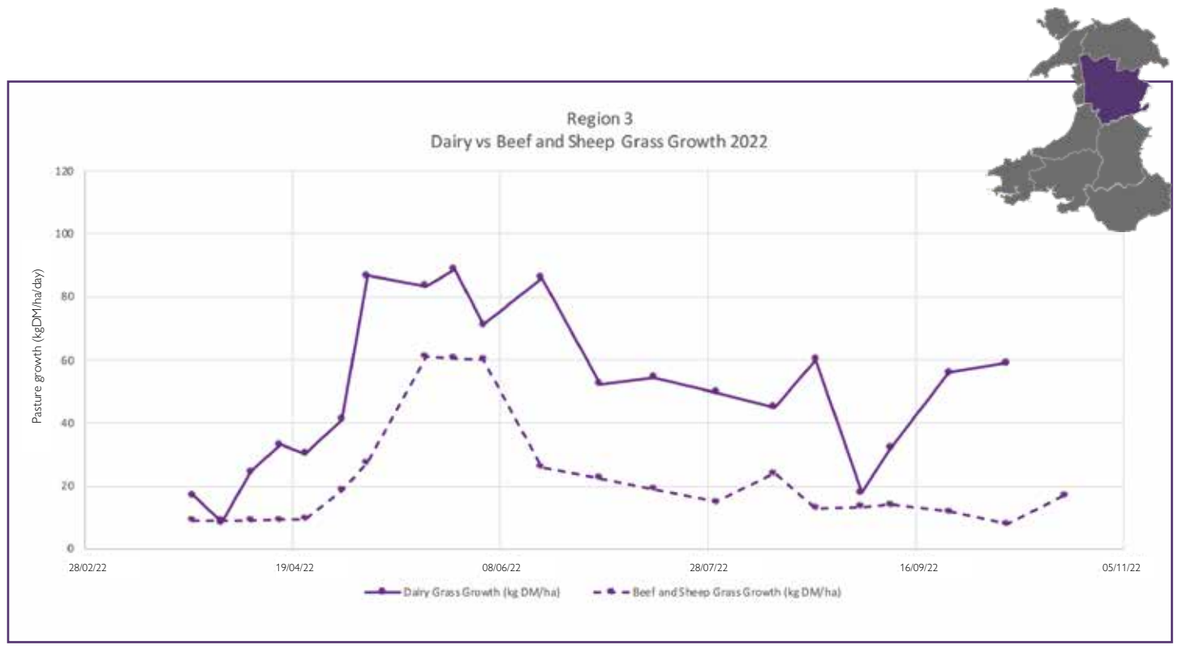

Figure 6 - Region 3 Pasture Growth 2022 - Beef, sheep and dairy

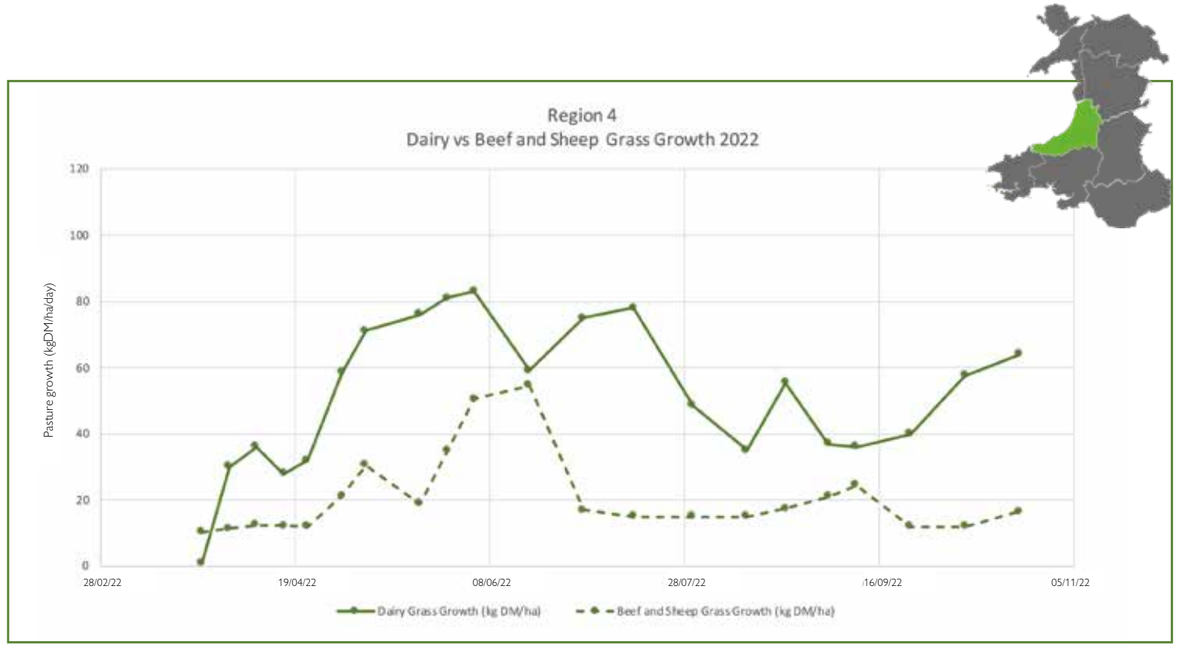

Figure 7 - Region 4 Pasture Growth 2022 - Beef, sheep and dairy

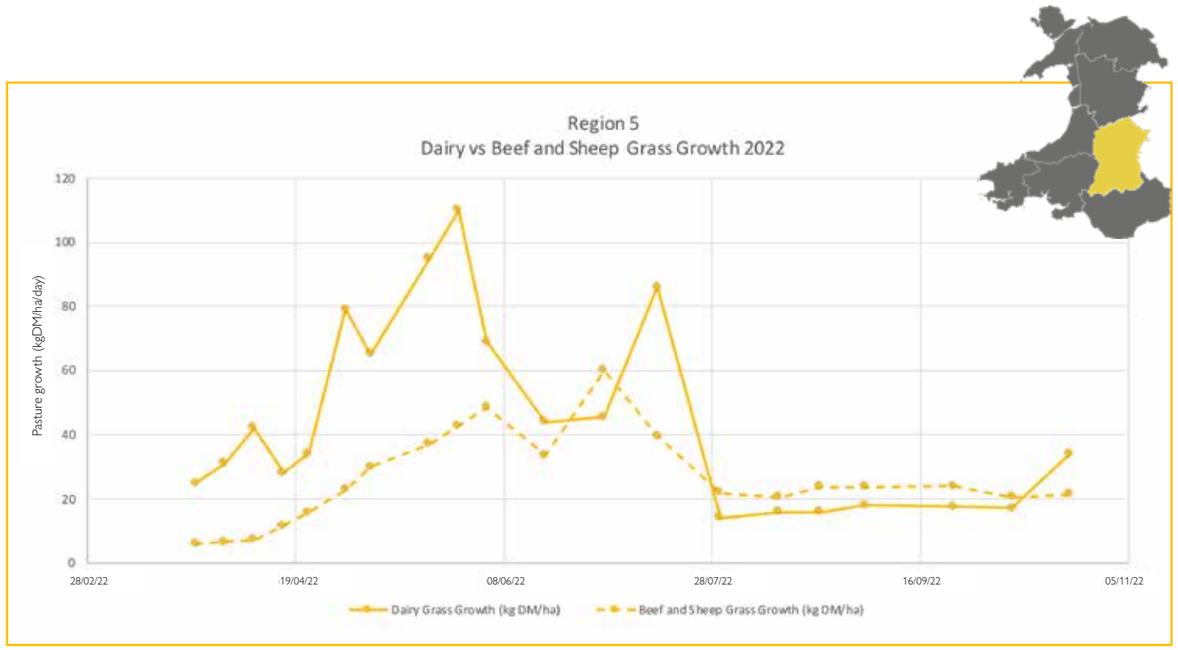

Figure 8 - Region 5 Pasture Growth 2022 - Beef, sheep and dairy

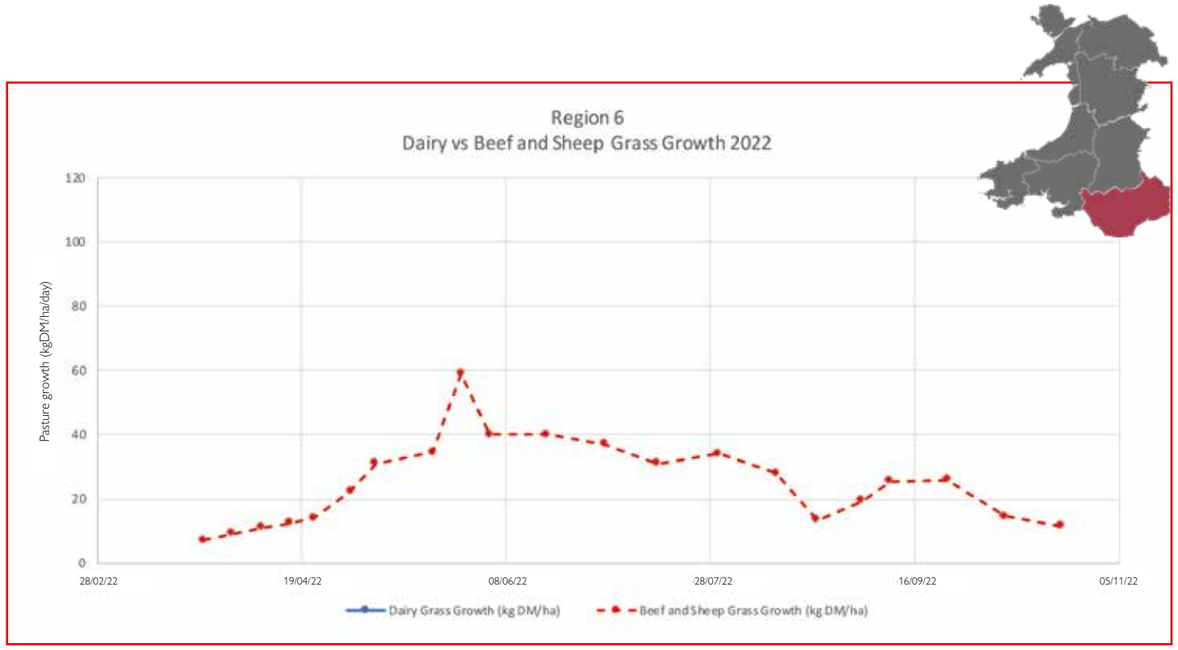

Figure 9 - Region 6 Pasture Growth 2022 - Beef, sheep and dairy

***Note there are no dairy farms measuring in this region.**

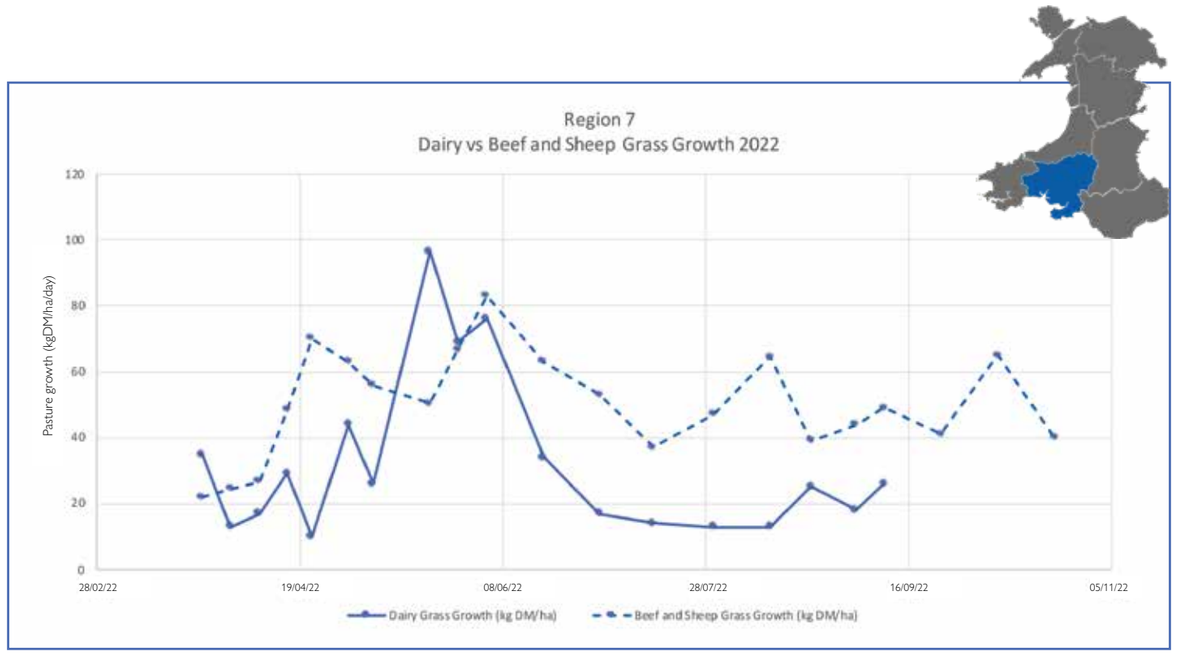

Figure 10 – Region 7 pasture growth 2022 - Beef, sheep and dairy

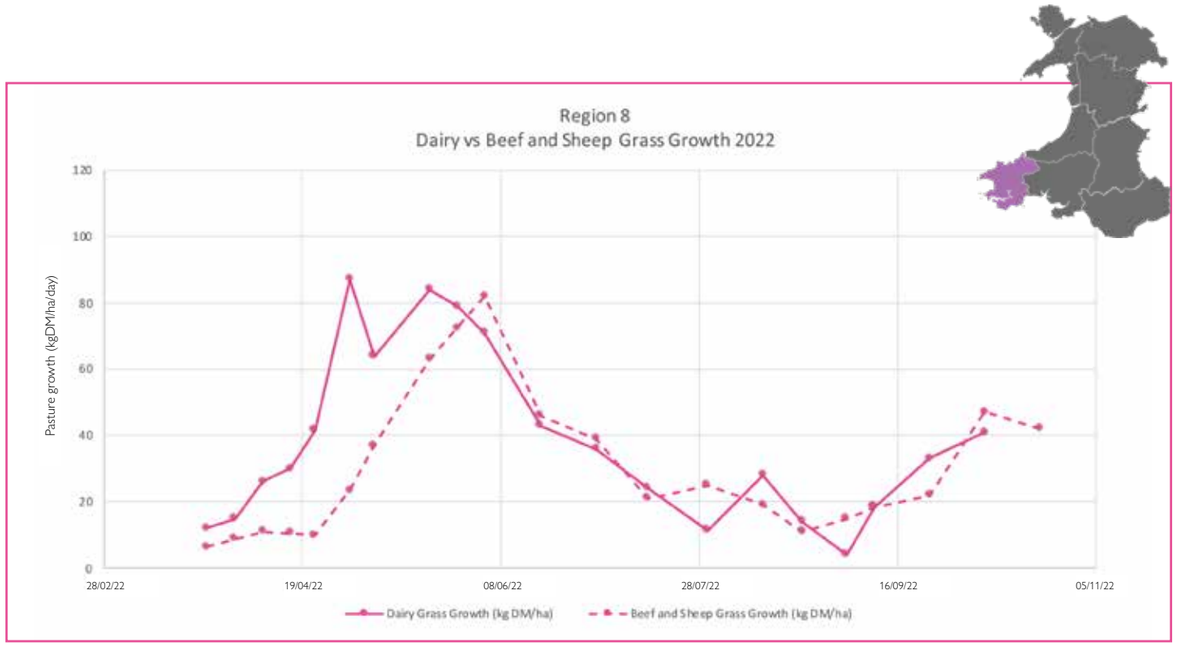

Figure 11 – Region 8 pasture growth 2022 - Beef, sheep and dairy

4.4 TOTAL PASTURE PRODUCTION

The graph below shows the estimated tonnes of dry matter (tDM/ha) grown on dairy and beef/sheep farms throughout the eight regions that are part of the Welsh Pasture Project. On average, dairy farms across Wales grew 10tDM/ha and beef and/or sheep farms grew 6.8tDM/ha. This is similar to 2021 figures, however, in 2022 there is a large variance of pasture growth rates throughout different regions of Wales, with some regions with up to 3tDM/ha lower production than 2021, for example Region 8.

In some regions, there is a potential feed deficit of winter forage on-farm as many farms failed to achieve good quality and quantity of silage on their second cuts and may have experienced failed forage crops leading to increased reliance on bought-in feed.

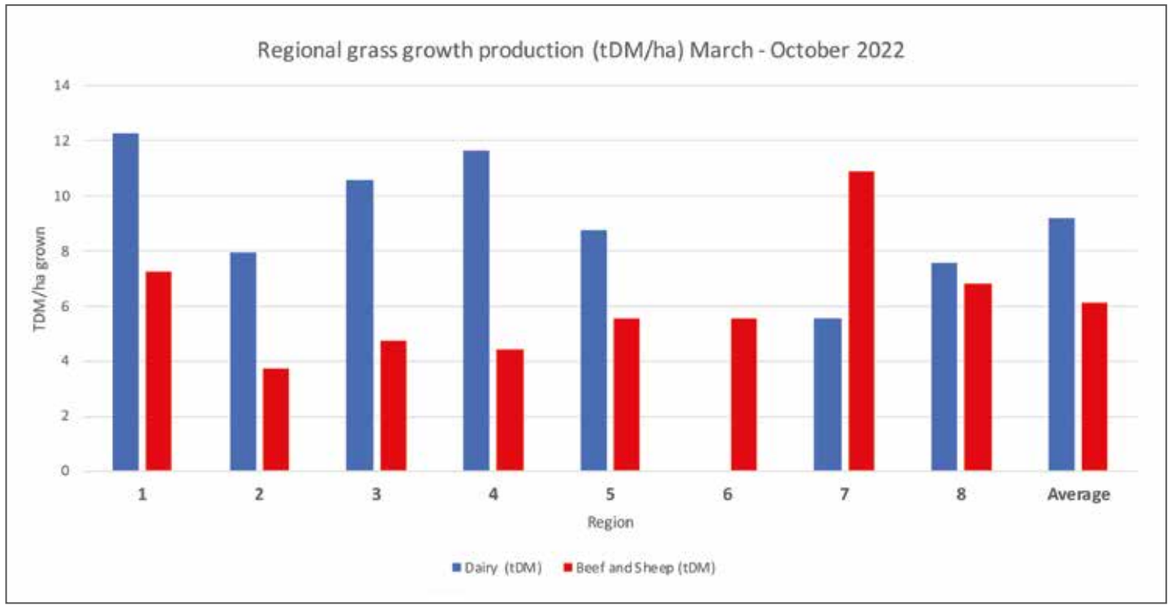

Figure 12 Tonnes dry matter (tDM) grown per ha – Beef, sheep and dairy

4.5 PASTURE QUALITY

A beef and/or sheep farm and a dairy farm from each region (16 in total) have been taking monthly fresh pasture samples for NIR (Near Infrared) analysis. This has provided the following data:

- Energy (MJME) (ME%)
- Protein (%)
- Dry matter (DM%)

The graph below shows how the quality of pasture has varied throughout the year on both dairy and beef and/or sheep farms. The average results for 2022, compared to 2021 are below. Overall, the dry weather resulted in higher dry matter pasture but of lower energy and protein. This reduction in quality was reflected in lower animal performance (but high contentment) during the dry summer period.

	2022	2021	Difference
Metabolisable energy (ME%)	11.6	11.8	-0.2
Protein (%)	21.1	22.1	-1.0
Dry matter (%)	20.6	19	+1.6

Table 1 - Pasture Quality 2021 vs 2022

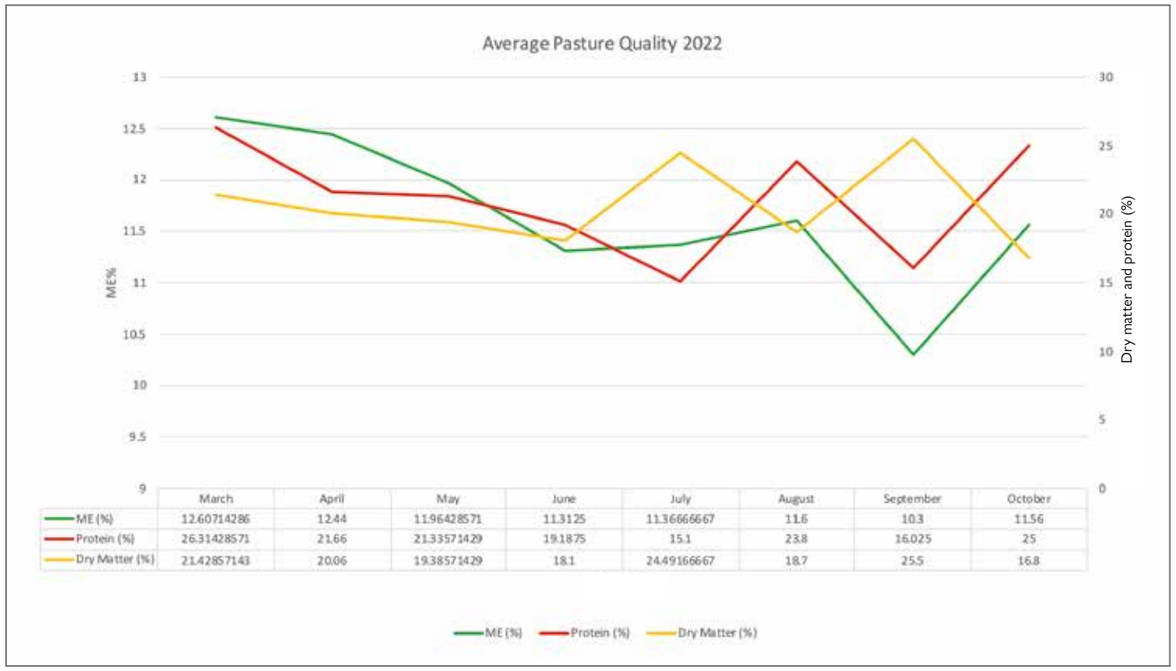

Figure 13 – Pasture Quality Sample Results 2022

NOTES