Grass proves its value on Welsh dairy farms

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Abstract

Wales has some of the most favourable climates for growing grass in the whole of the UK. It means grass can be grown very efficiently and it makes economic sense to optimise the use of that grass. Dairy farmer numbers in Wales have been falling since the 1960s, but there has been a more rapid decline in recent years. The main reason for this has been the downward pressure on milk price and an increase in the cost of production. It was interesting to see that with the 2013-2014 improvement in price the rate of decline slowed down. Wales has always received a lower milk price than areas in England that are closer to the higher density population areas, so making the most of grass to keep production costs down is clearly a priority. Milk from forage used to be a more common benchmark of performance and still has a very close correlation with profitability on forage based systems. The reason for the reduced interest in milk from forage as a performance indicator has been the increase in high input systems where milk from forage is not considered to be the right benchmark of performance. However, on grazing and high forage systems 4,000+ litres per cow of milk from forage is achievable.

Keywords: dairy, grass, grass value project, Wales

Introduction

The purpose of the Grass Value project was to identify best practice from high performing farms, to be able to recommend methods for improving grassland management and utilisation on dairy farms across Wales. The Grass Value project was set up to record grassland production and utilisation on dairy farms in Wales and to inform dairy farmers of the advantages of efficiently utilising the grass, so that they can gain a competitive advantage in the market. It was important to select a good cross section of farms across Wales, representing a range of different climatic conditions, altitude, soil types and production systems, including two organic farms. We set a benchmark in the first year of recording in 2011, endured the wettest summer in 100 years in 2012 and the coldest and latest spring for grass growth in 2013. Year 2 and 3 were very difficult seasons to manage and really challenged all farmers involved, but conditions did highlight what is possible to achieve under the most difficult circumstances, if the right farm infrastructure and grassland management skills are available.

Farm selection and method

Project farms were selected from all the main milk producing areas in Wales, with a focus on producers that were keen to make good use of quality grass. The farms covered a range of rainfall and soil types and included a mixture of spring and autumn calving herds and two organic herds.

All the project farms were visited by a technician every week for the duration of the project. Each paddock was measured with a rising plate meter to ascertain the grass growth and to work out the average farm cover.

Any Welsh producer that wishes to increase the value that grass contributes to their herd performance and profitability should be able to relate to one or more of the project farms in terms of location, size and system.

The weather conditions encountered in each of the three years were very different and at times challenging. For the project, this proved beneficial as it allowed the monitoring of grass growth and utilisation to be evaluated against management practices in the different growing conditions.

Results and discussion

The project farms averaged 37 weeks or 260 days grazing per year, with the highest achieving in excess of 290 days of full grazing in a year. On average, 10.4 Mg dry matter (DM) of grass per ha was grown on the twelve project farms. The highest yielding farm averaged 12.3 Mg DM ha^{-1}, and 84% of the grass grown was utilised by the cows. Milk from forage averaged 3,511 litres per cow and 10,341 litres per ha. Well managed grass had a production cost of £97 per Mg DM and a value of £197 per Mg DM – a 100% return on cost. This compares very favourably to conserved forages.

Accurate measuring and recording of grass helped to keep control of grazing management and ensure that supplements are used cost effectively. On all project farms there was a range in paddock performance, with the poorest 10% of paddocks typically growing half the grass of the 10% best performing paddocks on an individual farm. The project farmers used their records to target improvements cost effectively at under-performing paddocks. Well-managed, long-established permanent pastures can have a high ryegrass content and be as productive as many younger leys. Rotational grazing opened up swards and helped to encourage ryegrass growth. Poor swards, with less than 50% ryegrass content, produced 25% less grass, and swards with a high proportion of weed grasses recorded 14% less production.

Under organic management, swards with a high clover content produced 19% more grass than those with a low clover level. A sward with 30% clover can fix up to 200kg N ha^{-1}, but within conventional non-organic swards, clover did reduce sward productivity when the percentage of clover in the sward exceeded 50%.

The crop growing capability was determined by soil moisture. The limiting factors for crop growth are infiltration rate (drainage), water-holding capacity, soil structure, compaction and rainfall. The twelve project farms covered a range of soil types, from peat to heavy clays to light loams, sharing different challenges of low or excessive rainfall, and at times, unseasonal temperatures. The grass growth was evaluated relative to soil type. To limit the impact of different nitrogen regimes, paddocks receiving 200 to 300 kg nitrogen per hectare were compared and over the three-year period heavy soils produced just over 1 Mg more DM ha^{-1} than medium or light soils. Early spring and autumn grass growth was relatively similar across the soil types. Grass growth was less on lighter soils during the drier summer of 2011, but greater in the wet summer of 2012. All soils suffered restricted growth during the cold spring of 2013, and improved production later in that year did not make up for this loss. These results show that although soil type has a significant influence on grass production, as would be expected, the management of that soil is a key factor.

The profitability of the project farms was expressed as the proportion of the farm output that was retained as net margin. The average results over the three years showed that 31% was retained as margin. This compares very favourably with other UK dairy herds evaluated within DairyCo Milkbench+ (2013) which, on average, retained 4% of output as net margin, with the top 25% retaining 22%.

Conclusions

- The project farmers grazing higher covers produced more grass, but grazing a sward at too high a cover did increase wastage and reduce utilisation.

- Ideally the right cow for the system is available; she needs to produce quality milk efficiently, while maintaining body condition, to be able to walk long distances and most importantly, get back into calf, with a target of 1 kg milk solids per kg of live-weight.
- Good paddock access is vital: 90% of paddocks on the project farms had good track access.
- Flexibility: all the project farms had a flexible approach to grassland management.
- Simply growing grass does not mean it will be cheap and cost effective – it needs to be grown and utilised efficiently.
- Rotational grazing encourages ryegrass growth, so swards last longer.
- Target: good physical soil structure, correct chemical and mineral balance and abundant biological activity.
- Achieving value from grass is not just the focus of block-calving, low-input herds. All but the highest yielding herds have potential to exploit well managed grazed grass and improve herd profitability. Many herds with yields up to 9,000 litres per cow achieve a proportion of their yield from forage, with a good share of this from grazing. With the right infrastructure and effective management, grazed grass can replace more expensive conserved forages without compromising yield, leading to increases in herd profitability.

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