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Beef Grass Management Mid- Project Report, August 2014

Introduction

The aim of the Beef Grass Management Project is to improve the amount and quality of grass grown on farm and its utilisation by beef cattle. By providing stock with top quality grass consistently throughout the grazing season, optimum growth rates can be maintained in all ages of grazing stock. Rotational grazing of different groups of cattle should enable farmers to build up grass in the autumn, extending the grazing season for stock and to carry grass over the winter to allow for early turnout in February. This project is being carried out at Cilrhue Farm, Boncath, North Pembrokeshire, which is owned and managed by Mrs BH Davies and her sons John and Edward Davies. They are keen to see how much costs can be saved in rearing stock to the point of finishing with this system and to find out what stock growth rates are achievable.

The farm extends to 214 acres of owned land, with an additional 93 acres being rented on annual lets. The farm is predominantly down to grass with about 20 acres of wholecrop grown in summer and seeded to rape for the outwintering of cattle. This also forms part of the reseeding policy of the farm. Stock consists of about 600 head of cattle and calves of varying ages. The farming system consists of buying in 7-10 day old calves from local dairy farms, rearing on a grass/forage diet to about 24 months old and finishing on grass silage / wholecrop / concentrate diet to go straight to slaughter. The stock are bought in batches in the spring and autumn and consist of three main breed types of Friesian, Dairy Shorthorn and Hereford crosses. Historically, the stock have been grazed in small groups over the farm with about 150 of the 'big' cattle housed in a cubicle and slatted floor shed and finished on the silage / wholecrop / concentrate mix. Approximately 100 are out-wintered on rape and silage bales.

For the project, grass growth and quantity are measured every two weeks (weekly in the month of May) to find out how much grass is grown and which paddocks the stock should be going to. With this information, we can also plan which paddocks need to be dropped out for silage as they are too strong to graze, without running short of grass! Along with the measurements of grass growth and quantity, grass samples are taken every month to monitor what is the quality of the grass being put in front of the grazing stock. To monitor stock growth rates, they are weighed once a month. To assist with this task the Davies' have invested in an electronic identification system (EID) which makes the collecting of this crucial information relatively easy. This device will download to a laptop/tablet where the growth rates are calculated, and you can pick out any 'poor doers' for a bit more TLC!



Figure 1: Cattle grazing a fresh paddock at Cilrhue

The photo above shows a good example of good post and pre grazing covers. The piece just grazed was taken down to 1585 kgDM/ha where the cattle have grazed it out without being short of grass. The grass they are now in is 2900 kgDM/ha - just about where it should be to be grazed without being too strong.

A key aim of the project is to demonstrate that better grassland management will result in improved liveweight gain in the stock over the period. Financial saving in feed costs due to extended grazing and out wintering of cattle at heavier weights is therefore predicted. The project is also focusing on increasing the amount of grass produced from the grazing areas, making more efficient use of the land available and resulting in further savings.

Project Start-up

At the beginning of the project a farm walk was done to find out how much grass was on the farm, and at what feed level we were starting the project. Due to the over wintering of tack sheep the level of grass on farm was low at 1585 kgDM/ha. In the first instance the challenge was to build up a grass wedge. A grass wedge is where we have a wedge shaped graph formed from all the paddock measurements, with the highest cover, or the paddock with most grass, on the left, and the paddock with the least grass on the right, with the rest of the measurements in between to form a wedge. We needed to build grass levels up as soon as possible to allow as many cattle as possible to be turned onto grass as quickly as possible. To do this $\frac{1}{2}$ a bag of urea or 23 units of nitrogen per acre was applied to all the grassland on the home farm in mid March, which included the 63 acres of offlying land near Kidwelly, about 26 miles from the home farm of Cilrhue.

Initially there was only enough grass to turn out about 90 cattle in 2 mobs, 1 mob of 40 at Cilrhue and 1 mob of 50 down at the land near Kidwelly. This decision was made after measuring all the paddocks with a plate meter, and calculating the daily growth of grass. With this information a management decision could be made on how many cattle could be turned out according to grass growth. The Kidwelly block of land is 26 miles from the home farm and presents its own practical issues. Historically it has been stocked at about 2.6 livestock units per hectare, so on the 25.4 ha block 90 yearling cattle were kept on this block. This block had very little grass when it was measured in early March, 1520 kgDM/ha. It too received 23 units/acre of urea in mid March to help kick start grass growth.

This block was stocked with 50 yearlings at the end of March initially. The cattle were rotationally grazed around the 8 fields by splitting these into 2 paddocks per field to produce 16 separate

paddocks. By doing this it focused the grazing on one area whilst the other paddocks were growing grass. This encouraged quick regrowths and as grass growths increased more cattle were taken down to deal with the bigger grass growths.

By early April the block was stocked at 95 cattle or 2.8 LSU/Ha with a rotation length of 24 days. The cattle on the project were weighed during the third week in March, to use this data as a base to work out growths ongoing. At this point 90 cattle were out on grass, 100 were out finishing the rape and silage bales and the rest were housed. As growths in early April took off at Cilrhue at 32kgdm/ha, more cattle were turned onto the grazing from the finishing rape block and housed cattle. There were then two blocks of 68 cattle running on blocks of 20ha each which equates to a stocking rate of 2.7LSU /Ha on these blocks at a rotation length of 25 days. Another group was out grazing a week later, this was a group of 38 shorthorn cross friesan bull calves, 9-10 months of age who were rotationally grazed around an area of 6.4ha on a stocking rate of 3.7Lsu/ha. These were managed by rotating around 3 fields every 7 days. This method of grazing does limit grass growth by spending more than 48 hrs in each field, but as the fields were rented and had limitations on what can be done with the fields, the farmer saw this as a compromise with this small block of land.

On the home farm due to good grass growth, about 40ha was taken out for silage, and these fields then received 3000 gal/acre of slurry at the beginning of April, with an application of 3 bags per acre of Humber 18 which has 20-4-5 of n,p,k and 2 of mag and 26 of sulphur. The fertilizer was applied later on in the month. As an on farm trial, the farmer had 15ha injected with liquid urea which worked out at 200 units per acre of nitrogen. This was done to compare growth rates with the rest of the farm which received bagged fertilizer of Humber 18 at an application rate of 40 units per acre every 60 days.

The cattle on the project were weighed at the end of April for the second time. At the time most of the cattle were on grass, but 35 were still on the rape and bales in order to finish the crop off before being ploughed for wholecrop. A variation of weights were seen, from 0.4kg/day to 1.78kg/day with the average coming out as 1kg per day. The lower growth rates came from cattle fed on rape, which threw up a question to the farmer on the viability of grazing rape in the same way in winter.

At this point there were four main groups of stock being grazed, they were as follows:

- 38 Shorthorn x Friesan (Autumn 2013 Born)
- 67 Friesan x's (Spring 2013 Born)
- 108 Fiesan x's (Spring 2013 Born)
- 27 Hereford + Friesan x's (Spring 2012 Born)
- 30 Shorthorn +Friesan x's (Spring 2013 Born)

The group of 108 cattle was the group down in Kidwelly. Due to better grass management and good grass growth, it was decided to increase stock numbers to 108 to keep up with daily growth and to make best use of the grass grown. This increase in stock numbers took the stocking rate from 2.8 to 3.4 Lsu/ha. Cattle groups were moved on in their respective rotations once they had grazed down to 1500-1600 kgdm/ha (about 2 inches). The stock would be going in to pre-grazing covers of 2800-3000 kgdm/ha (about 6 inches).

This information was obtained by frequent grass monitoring via the plate meter, and the data used to plan how many feeds/days each mob would spend in each paddock. These calculated figures were accurate on that day of measuring but with a hot dry spell of over a month we found that as the dry matter of the grass went up paddocks lasted longer than was estimated. Although with this spell came a drop in growth rates to keep grazing pressure up.

A problem we encountered down in Kidwelly was by the end of May growth rates had dropped

from high 40's to half that, probably due to a combination of cooler weather and a delayed fertilizer application via a late contractor. We had pulled out a field and earmarked it to be cut for silage but with the problem with grass growth it was decided to graze the high covers of the silage field (which were about 3700kgDM/ha). By doing this it gave us an extra 8 days feed and 8 days extra growth in the other paddocks to maintain a 24 day rotation and feed wedge. The only negative to this decision was the feed being quite fibrous, would be of a lower quality and would result in a lowering of cattle growth rates for that short period. With the location of this block of land it was the only feasible solution to the problem. Once the contractor had turned up the land had an application of 34.5 units /acre of prilled nitrogen.

At Cilrhue with good growth rates in May of between 40-85kgDM/ha, the mob grazing the block of land injected with liquid nitrogen had 15 cattle added to it to keep demand on a par with the growth of this block. So this mob of 83 cattle were kept on a block of 11.3ha which equated to a stocking rate of 5 livestock units per hectare. This shows the possibility of feeding and growing cattle at an average daily liveweight gain of 1.5kg on a high stocking rate can be maintained with the right stock and grassland management.

The first cut of silage was taken in mid June at Cilrhue, and due to frequent grass monitoring and good growth 20% more acres were cut, even though the stock numbers were the same as the previous year. To maintain quality some pre-mowing was done on a small area of the farm. Pre-mowing is where the grass is mown at slightly higher level than for baling. The reason for this is so the mower travels over the cow pats and it doesn't taint the cut grass. After cutting an electric fence is put up to ration the cattle to 12hr allocation of grass so as to limit the amount of walking over the cut grass and possible rejection.

As well as pre-mowing, 1 field out of the grazing rotations was cut for silage, as it was a medium heading perennial ryegrass and had got very strong and woody, over 4000kgDM/ha in places. We grazed half of the area before pulling out and cut and baled the whole area. The only negative of pre-mowing and cutting a light crop for bales (short term silage it is also known as) is the effect it has on grass regrowth. So for instance in a slow growth time of year it is not advisable to do this as it mechanically suppresses grass growth.

The spring born calves of 2014 were out grazing in late April and by mid May had started to make an impact on demand as they were eating 3-4kgDM of grass. This coincided with the increase in grass growth on the farm, and the moving of stock to increase other mob sizes on and off the main farm.

The spring calves were weighed in June for grouping purposes and following on to the next weighing in mid July the average daily liveweight gain was 0.78kg/day. This was a good level to be at going forward but in those figures there were smaller calves with lower growth rates. So as part of the management protocol the lightest 10% of the spring born calves were separated and fed 1kg of concentrate on top of good quality grass to help increase growth rates to catch up with the rest of the spring born mob.

At the beginning of August 100 acres of second cut was harvested along with 25 acres of wholecrop silage to be layered in the same pit.

After the initial early urea application in mid March, 2 bags per acre of Humber 18 was applied to all the grazing area in mid - late April (except the block of land that was to be injected with liquid nitrogen), followed by a top dressing of 1 bag per acre of prilled nitrogen at 34.5% in late June.

The cattle being weighed on the project have given quite positive results as far as daily liveweight

gain have shown . The average over 300 head of cattle ranging from 8 months old to 26 months old have been as follows:

- May – 1kg/day
- June – 1.55kg/day
- July – 1.19kg/day

Summary

The first six months of this project have focused on the development of the grazing platform to ensure it is suitable for controlled grass management. Initial results indicate that:

- grass quality and quantity have both increased, which has enabled higher stocking rates in certain areas.
- Daily liveweight gain to date is improved on previous years (although this is not quantifiable, this is according to farmer observation).
- Following this phase of improved management, the next phase of the project should continue to see further gains, but with a lower requirement for inputs.

With the data produced so far, it would be beneficial if the project could be extended into another season, with a variety in weather and challenges that could present. Two years worth of information and data could further emphasize the positives and benefits of using a controlled grassland management system in grazing beef cattle.

