

THEME REPORT

NORTH AYRSHIRE MONITOR FARM ROTATIONAL GRAZING BENEFITS

THE CHALLENGE

When the monitor farm programme began in 2017, all livestock at Girtridge was grazed on a set stocking system. With the initial flock of 140 ewes and 4 tups combined with 230 finishing cattle, 10 suckler cows and 1 bull, the farm had a total of 173.5 LU (livestock units). This is a stocking rate of 1.91 LU/ha over the 91 ha of grazing ground over the growing season excluding the barley and silage fields – 0.99 LU/ha across the 175 ha farm as a whole. Set stocking is not the best system for maximising utilisation of grass; it results in a high wastage, reduced growth and can encourage selective grazing, allowing an increase in weeds and a reduction in ryegrass.

There was great scope to improve the productivity of grassland at Girtridge by optimising sward and soil health as well as improving the grazing system. A rotational grazing system was introduced to improve grass yields, utilisation and promote the growth of the productive grass species. This could then create an opportunity increase livestock numbers.

WHAT WE DID ON FARM

The management group felt that John could make better use of his grassland to improve efficiency and increase profit margins.



Figure 1: The monitor farm community group measuring grass with sward sticks

Grazing Management 2017

In 2017, John set up a paddock grazing system for both the cattle and the sheep.

Cattle

For the cattle, an area of 12.95 ha (32 acres) was split up into 8 paddocks 1.62 ha in size with an additional 2 paddocks with a total of 3.23 ha brought into the rotation after silage. Three-day shifts gave the paddocks a 27-day rest period. With 70 cattle grazing, there were 46 Livestock Units (LU) in total which gave a stocking rate of 2.8 LU/ha. Cattle were turned out in May to the end of September and achieved an average of 0.52 kg DLWG and with a peak of 1.2 kg/day. 50 cattle were sold finished off paddocks with no feeding required. The fertiliser application reduced by 50% compared to the previous year and the cattle are now utilising 16.18 ha instead of the previous 24.28 ha. This has resulted in a higher stocking density of 2.8 vs 1.89 LU/ha – a 30% uplift in production. The cost of the electric fencing and energiser was £532, which equates to £33/ha or 10 p/hd/day. John found this to be less hassle as cattle could be moved and checked in minutes.

Sheep

A 12 ha block (30 acres) was split into 10 paddocks for the sheep - 120 ewes and 208 lambs (20.8 LU = 1.72 LU/ha) grazed from early June to the end of October with 3-day shifts. The stocking rate at 1.72 LU/ha wasn't high enough so grass began to get away from them and had to be controlled with a topper – opportunity for surplus grass to be cut for silage. No fertiliser was applied to these paddocks, just lime at the rate of 2.5 t/ha. 70 lambs were sold finished straight off of their mothers and the rest were weaned on 1 August at 143 days old. The electric fencing was more costly than for cattle due to 3 wires being required. The cost came in at £1,429 for electric fencing and energiser plus an extra £150 for water pipes, equating to £130/ha or 3 p/ewe/day. The sheep were previously set stocked at 1.04 LU/ha compared to 1.72 LU/ha in 2017 on the rotational system - a 39% uplift in production.

Grazing Management 2018

Cattle

In 2018, 117 cattle were paddock grazed at Ashyards over an area of 20.20 ha plus 14.16 ha hay aftermath totalling 34.36 ha. The cattle were split into 2 groups and rotated around 3 paddocks each at 2.2 LU/ha. At Girtridge 70 cattle rotated around 9 paddocks at 2 ha each (18.2 ha total) with 3-day shifts. The average growth rate at grass in 2018 was 0.56 kg/hd/day. There were challenges due to the hot dry summer, where the fields burned up and under performance of the grass at Ashyards. The ideal sward entry heights are around 10-12 cm grazed down to 5-6 cm at exit height, leaving enough residual to promote fast re-growth.

Sheep

In 2018, a 12 ha block was split into six 2 ha paddocks plus aftermaths were brought in when available for 200 ewes plus lambs (35 LU = 2.88 LU/ha) on a 3-day shift. This is the same area as in 2017; however, the higher stocking density (2.88 vs 1.72 LU/ha) resulted in improved grass utilisation. The sheep were rotated until September with the lambs weaned at 151 days old. The lambs then grazed the aftermaths. John saw a huge labour saving in checking stock due to all the sheep being in one area. There was an increase of 40% stocking from 2017 and an uplift of 64% from the initial stocking rate when the Monitor Farm Programme started.

Grazing Management 2019

Cattle

In 2019, 70 cattle were grazed rotationally over 20 ha. The area was split into 9 paddocks with a 3-day shift giving each paddock a 24-day rest period. A total of 45.5 LU gives a stocking rate of 2.3 LU/ha.

Sheep

For the sheep in 2019, 320 ewes were grazed rotationally over a 12.14 ha block (30 acres) split into 6 paddocks with a 3-day shift and a 15-day rest period at a stocking rate 3.95 LU/ha. Even with such a high stocking rate there was a surplus of grass in one paddock. There was the option to skip out this paddock and use it for deferred grazing later in the year to prevent a reduction in the quality of grass in other paddocks, or take it out and cut it for hay. Ideally sheep are entering paddocks at 7-8 cm and grazing down to 4-5 cm. Leaving plenty of residual grass after grazing allows faster regrowth.

The lambs were weighed at 8 weeks old and a growth rate was calculated. The average Daily Liveweight Gain (DLWG) for the lambs in 2019 was 377 g/day.

Flexibility of Paddock Grazing System

In optimum growing conditions, grass can begin to get away from the sheep and cattle, resulting in a surplus of matured grass which has reduced feed quality. The paddock grazing system opens up the opportunity to add or remove paddocks from the rotation - surplus grass can be utilised for silage or deferred grazing. Removing surplus grass ensures that the nutritional quality of grass in the remaining paddocks aren't compromised so protein and energy levels remain high.



Figure 2: Sheep rotation paddocks 2019

THE RESULTS

Rotational grazing of cattle and sheep over the past 3 years have proved a success, with increased stocking density and an uplift in production. There has been over a 30% uplift in production with the cattle and there has been a substantial 64% summer stocking increase in the sheep enterprise from year 1. The electric fencing costs came to £130/ha for the sheep and £33/ha for the cattle. The sheep sales output increased by £15,000 and cattle sales output increased by £75,000 from 2017 and 2019 which is mainly due to increased livestock numbers and improved production efficiency, made possible by the rotational grazing system. The electric fencing should have a lifespan of at least 5 years. If the cost of the fencing was split over a 5 year period, it is only costs £316/year for the sheep.

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Before the rotational grazing system was used, the ewes would have been set stocked over 20 ha (50 acres) at 1.04 LU/ha (6 ewes/ha). The 12.14 ha block (30 acres) where the sheep were grazing in 2019 is now supporting a much heavier stocking rate of 3.95 LU/ha (28 ewes/ha).

Paddock grazing was also very successful for the cattle with stocking rates ranging from 2.3-2.8 LU/ha between 2017 and 2019. The use of paddock grazing has brought many benefits to the farm. Production has increased while costs have decreased through reduced need for reseeding, nitrogen applications and concentrate feeding.

As a result of the paddock grazing systems, grass growth and utilisation have increased. The area of grassland at Girtridge grazed in a rotational system has expanded gradually since 2017. This enabled the expansion of the sheep flock to 252 ewes in 2017/18, 344 ewes in 2018/19, and numbers were increased again in autumn 2019 to 500 ewes. John also purchased 2 Aberfield tups in Autumn 2019 to allow him to breed his own replacement ewe lambs.

WHAT HAS CHANGED ON FARM

Stocking rates, grass growth and utilisation have increased considerably while inputs have reduced since implementing the rotational grazing system at Girtridge. John plans to continue with the rotational grazing system and adjust the stocking rate to see how much more Girtridge can carry, although additional labour may be required to assist at times if more stock was introduced. The livestock sales output has increased by £90,000 from 2017 to 2019.



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