

ANGUS MONITOR FARM Maximising Forage – Rotational Grazing

THE CHALLENGE

- 2018 Farmbench data identified that grassland production cost the Mill of Inverarity £41,000.
- Sale price for finished cattle and finished lamb was back on 2018 prices in the first quarter of 2019.
- Grassland management was identified as an area that could be improved at the Mill of Inverarity to maximise output per hectare and reduce annual feed costs.

WHAT WE DID ON FARM

- Following the success of the rotational grazing in 2018, several rotational grazing systems were constructed in different grazing blocks using semi-permanent fencing and high tensile wire; temporary fiberglass posts and poly wire and a mixture of both.
- Grass growth was closely monitored to help predict grass shortage/surplus using the plate meter supplied through the project.
- Fertiliser rates were reduced throughout the grazing season as a result of improved grassland management.
- Stocking density was increased on the land managed within a rotational grazing system.
- Livestock was moved on average every three days, providing an 18 day rest period during peak growth.
- Paddocks with surplus growth were removed from the rotational grazing system and used to produce silage.

Grassland Management

The Stodarts had 108 hectares of grassland in 2019, with 83ha of the grazing ground divided into 1.5ha paddocks for the rotational grazing system. All of the grassland was used to feed the following livestock.

- 93 cows with calves
- 25 bulling heifers
- 25 Aberdeen Angus Stots
- 3 breeding bulls
- 670 ewes with lambs at foot
- 80 gimmers

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- 14 tups

Because there were many different classes of livestock that were utilising the system, the Stodarts had to plan very carefully what group will graze a paddock first and what group will follow. Grazing priority was given to young stock, with ewes and twin lambs grazing the largest proportion of grass.

Cost of Setup

The Mill of Inverarity used a mixture of semi-permanent and temporary fencing to split fields into smaller paddocks. Additionally, water troughs were purchased to supply the paddocks, as well as an energiser and earth rods.

Table 1 - Cost of setting up the rotational grazing system at the Mill of Inverarity

Item	Cost	Lifetime	Depreciation per year	Number per ha	£/ha
Wooden posts	£2.40	5	£0.48	9	£4.32
Plastic Posts	£0.90	5	£0.18	18	£3.24
High Tensile Wire	£0.20	5	£0.04	200	£8.00
Poly Wire	£0.14/m	5	£0.03	400	£12.00
Reel	£35	5	£7.00	1	£7.00
Water Trough	£50/each	5	£10.00	1/6	£1.66
Water Pipe	£0.86/m	5	£0.17	15m	£2.59
Energiser	£1300	15	£86.67	1/83	£1.04
Earth	£200	15	£13.33	1/83	£0.16
Total					£40.01

Labour

Labour was a concern for the Stodarts as the workforce is currently at capacity. The Stodarts did not have time to move electric fences for every move of livestock and therefore decided to erect semi-permanent fences. These took longer to erect and cost more per meter, however over the course of the season these fences were much quicker to build than temporary fencing.

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Table 2 - Cost of building and maintaining the rotational grazing system

	Days (8 hours/day)	Cost (8hour day at £12/hour)	Cost/ha
Set Up	8	£768	£9.25
Maintenance	2	£192	£2.31

2019 Fertiliser Programme

A known benefit of rotational grazing is the reduced requirement for fertiliser due to higher grass utilisation and recycling of nutrients through livestock manure. Table 3 details the fertiliser application.

Table 3 - Fertiliser application for the Mill of Inverarity's rotational grazing system.

Date	Product	Rate (kg/ha)	N Applied (kg/ha)	P Applied (kg/ha)	K Applied (kg/ha)	Cost
08/04/2019	16.16.16+7.5S	370	59	59	59	£114.33
12/05/2019	Urea 46N	150	69	0	0	£36.75
Total			128	59	59	£151.08

The total cost of fertiliser for the rotational grazing system was £151.08/ha, in comparison to 2018 this is a reduction of £93.24/ha.

Linking With the Community Group

Following the implementation of the rotational grazing system there was two community group meetings focusing on how to install and benefit from this method of grazing. Firstly, John Ritchie from Montalt Farm came to the Mill of Inverarity to speak on his grazing system. A key point John made was that smaller paddocks are more efficient. Secondly, the community group visited the Lothians Monitor Farm to see how Peter Eccles has progressed with his system and also Charley Walker at Barnside Farm, who suggested that small changes make a significant difference in the effectiveness of the fencing system.

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Results

Although the grazing system has provided challenges, particularly training livestock to respect the temporary fencing, it has delivered significant benefits at the Mill of Inverarity. Stocking rates have increased from 15 ewes/ha to 25 ewes/ha during the peak growing season and due to increased grass performance an additional 12ha of silage was made.

Table 4 - Cost and benefit of rotational grazing at the Mill of Inverarity

Item	Cost/ Saving per ha
Fencing and Water	-£40.01
Labour	-£11.56
Fertiliser	£93.24
Total saving per ha	£41.67
Total saving on grassland	£3,458.61

Table 4 details the total saving by implementing this system to be £41.67/ha. However, this calculation does not include the increased output from a higher stocking rate or the reduction in feed costs from increase home grown fodder. In future years, there is potential to reduce fertiliser use further which will increase the savings to be made.

What Next?

- Once all of the young stock has been sold the Stodarts will evaluate the value of the rotational grazing system against the increase in stocking density and variations in growth rates.
- The Stodarts plan to increase the size of their energiser as the current one does not have capacity for the length of fencing used (this cost has been included in the calculations above).
- In September, the Stodarts took delivery of the new Beef Monitor system, including a solar panel. Although this was briefly trialled outside weather restrictions prevented a thorough trial. Once livestock are put back out to grass in spring this Beef Monitor will be used to weigh cattle while outside.

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