

## ANGUS MONITOR FARM Improving Beef Finishing Efficiency

### THE CHALLENGE

- The Stodarts have historically finished large numbers of cattle (200 to 300 head per year, plus homebred cattle) however, the fall in the beef price in 2019 reduced finisher's margins by approximately £150/head.
- Ensuring maximum return from finished cattle relies on meeting market specification while simultaneously reducing the cost of production.
- Regularly weighing cattle has generally helped the Stodarts to monitor cattle growth rates and select animals for slaughter. However, the risk of injury to livestock during this process was high and cattle growth were temporally halted post weighing due to stress levels.
- The implementation of the rotational grazing system has extended the grazing season at the Mill of Inverarity, presenting further challenges to weighing cattle.
- The transition between grazing and housing has previously been identified as an opportunity for improvement in the efficiency of the finishing cattle.

### WHAT WE DID ON FARM

- In 2019 a Beef Monitor and solar panel pack was purchased from Ritchies.
- On the 6<sup>th</sup> of May, 19 Aberdeen Angus X and 6 Aberdeen Angus steers were put onto a rotational grazing system.
- The Beef Monitor was installed within the rotational grazing system and the 25 steers began to be measured from the 8<sup>th</sup> August.
- The growth of the cattle was monitored within the grazing system and throughout the introduction of hard feed before the cattle and Beef Monitor were moved inside to continue recording this batch of cattle.
- The cattle were brought inside on the 26<sup>th</sup> of August, and their diet was changed to a hard feed finishing ration.
- Cattle were selected for slaughter as they reached target specification of 680kg.

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## RESULTS

### Cattle Information

Table 1 – Steer cattle batch information

Batch Average	
Purchase Weight	<b>442kg</b>
Purchase Age	<b>12.8 months</b>
Sale Weight	<b>619kg</b>
Sale Age	<b>19.2 months</b>
Weight increase	<b>177.4kg</b>
Days on holding	<b>197 days (6.5months)</b>
Daily Live Weight Gain	<b>0.90kg/day</b>

Table 1 shows that the average age of the purchased cattle was 12.8 months, at an average weight of 442kg. Assuming a 50kg birth weight, the growth of the purchased cattle was 1.01kg/day from birth to when the cattle were purchased by the Stodarts. However, when the cattle were put to grass in May, until they were sold (September to December) the cattle grew and average of 0.9kg/day. The average sale weight was 619kg live weight, however when the lightest steer was removed as an outlier at 540kg, the average sale weight is 624kg.

### Beef Monitor within a rotational grazing system

The rotational grazing systems at the Mill of Inverarity have been a great success and have reduced fertiliser use and increased stocking densities. However, a limitation of this system, is the restrictions presented when weighing cattle due to the movement of livestock out with the system and the practicality of moving cattle back to the farm yard. Combined with the Stodarts transition towards more native cattle breeds (including Aberdeen Angus) and a grass based finishing system, the issue of weighing cattle regularly becomes greater.

The Beef Monitor was purchased with a Photo Voltaic (PV) panel, which supply's the reader with electricity, allowing the cattle to be monitored remotely. This system had been tried and tested within a set stocking system but not within a rotational grazing paddock system. Initially, it was thought that the Beef Monitor could be moved daily with the cattle, however the water connection required for the water trough presented difficulties when moving and was time consuming. Therefore, the Stodarts decided to use gates so that the beef monitor could be located centrally and accessed from several paddocks by moving gates around. Given the high rainfall experienced in 2019, poaching around the

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entry to the Beef Monitor did provide a problem, and in severe cases the beef monitor was moved to a new site to allow grass to recover.

However, the purchased batch of Aberdeen Angus cattle were successfully monitored while at grass and the Beef Monitor will be used more intensely in the future within the rotational grazing system.

## Daily Live Weight Gain

Daily live weight gain of a cattle finishing enterprise is a key performance indicator, and in a forage based system the industry average is 0.8kg/d (QMS, 2019). Cattle weights up to point of housing averaged 0.9kg/d, and post housing they also averaged 0.9kg/d, above the industry average.

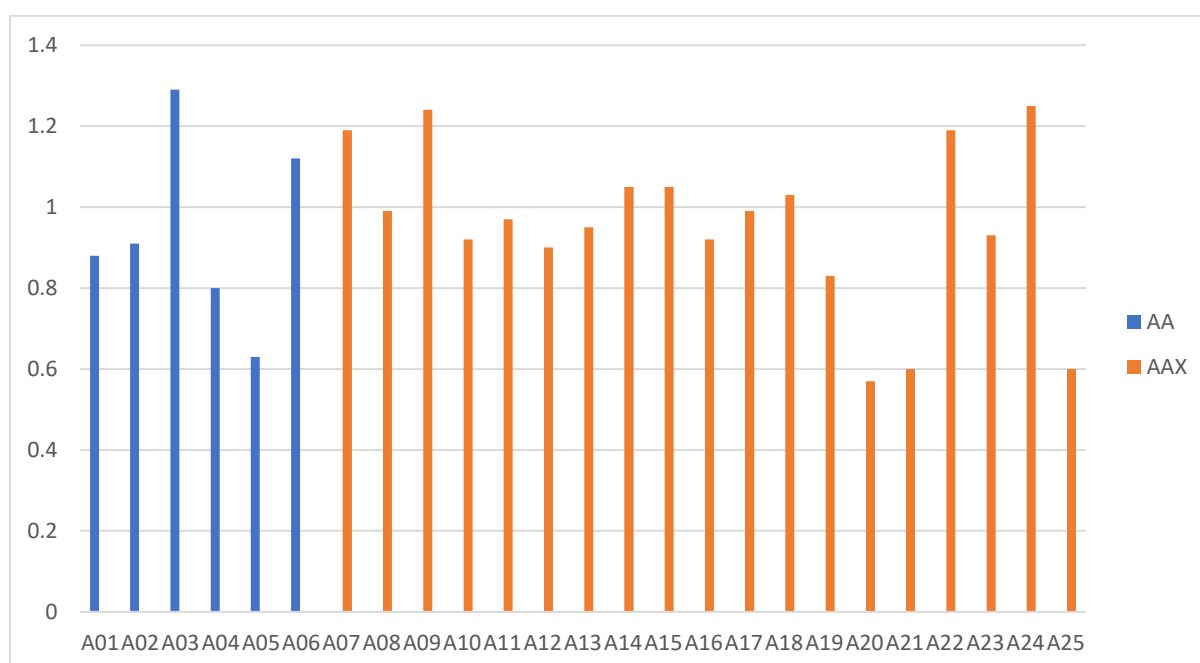


Figure 1 - DLWG of AA and AAX cattle

Figure one shows the daily live weight gain for each individual animal from the date it was purchased to when it was sold. Daily live weight gains vary from 0.57kg/d to 1.29kg/day. Based on the average time an animal was at the Mill of Inverarity, this is a difference of 142kg/head, based on a price of 349p/kg dead weight (November 2019) and a killing out percentage of 53%, this equates to £262.62 between the best and poorest performers, assuming no difference in age at slaughter, and no Aberdeen Angus premium. However, the batch average of 0.9kg/d is above the industry average of 0.8kg/d.

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## Target and Achieved Weight

Achieving the optimum live weight at sale is crucial to obtain the maximum return possible without occurring penalties for animals which are overweight. Furthermore, reducing stress on animals prior to slaughter can maintain quality by preventing handling injuries such as bruising.

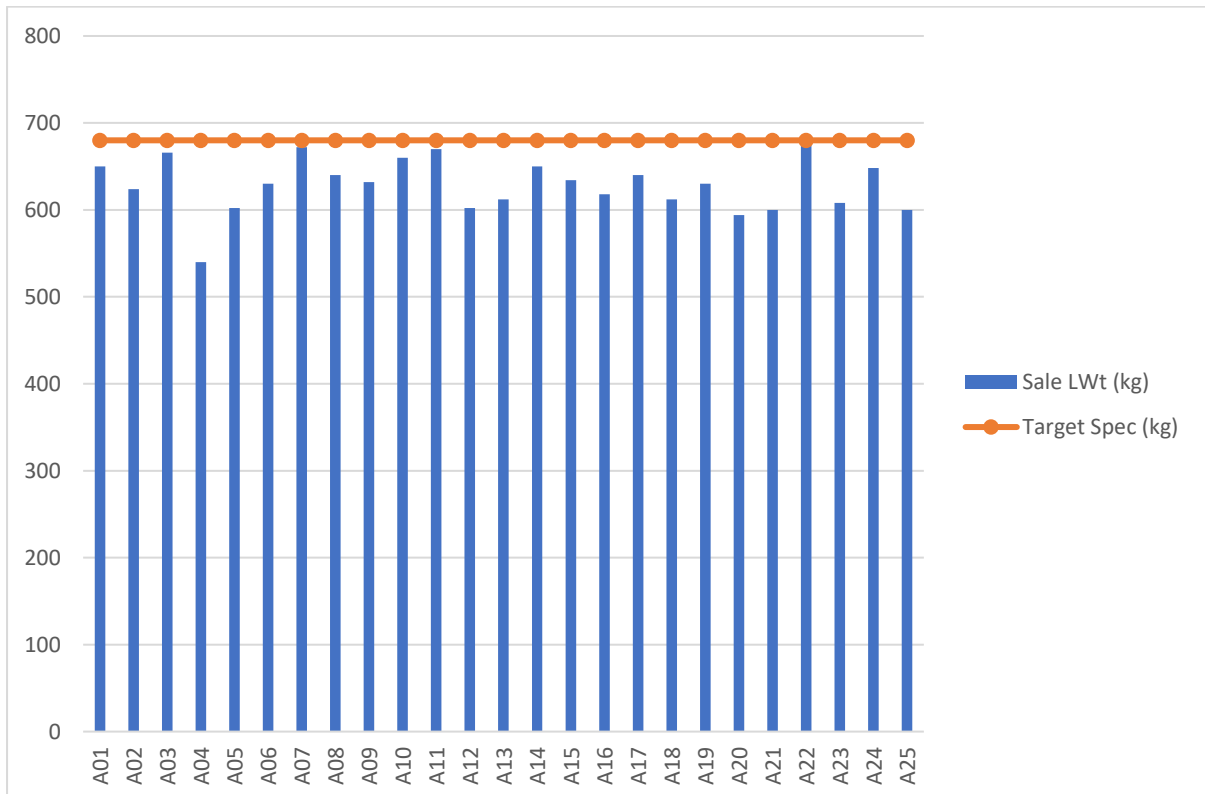


Figure 2 - AA and AAX sale live weight

Figure 2 shows the live weight at sale of each individual animal, with the red line highlighting the target live weight set by the Stodarts of 680kg. As shown by figure 2 no animals exceeded the total live weight specification, highlighting that regular weights provided by the Beef Monitor have aided the Stodarts to keep animals within specified weights.

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## DLWG and Days on Holding

Further analysis on the sale weight of the steers has identified that the Stodarts sold animals in 7 different batches of varying number. The first sale was on the 9<sup>th</sup> September and the final sale was the 12<sup>th</sup> of December (left to right). Days to slaughter is another key performance indicator which, combined with DLWG can help to provide buying strategies for finishing cattle in the future.

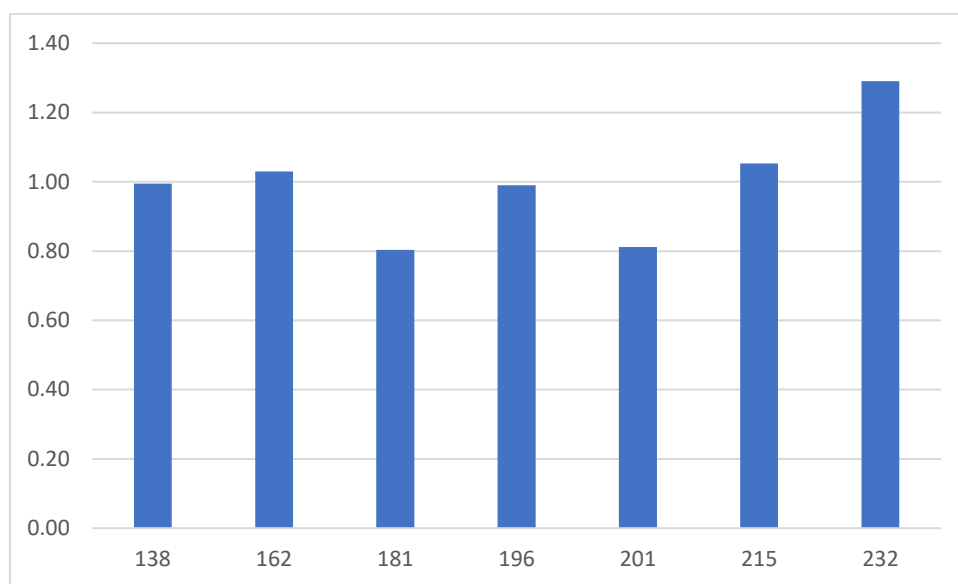


Figure 3 - Days on farm and daily live weight gain

Figure 3 shows the DLWG of each batch of cattle and the number of days that batch was on the farm. The first bar was sold in September and the last bar was sold in December. The clear decline and then subsequent increase in DLWG as the cattle matured is likely due to stress and diet change post housing, however further investigation of batches 3, 4 and 5 is required to identify if these cattle were purchased from different herds or if they had any health issues.

In the future this identification can be achieved in real time as daily growth is monitored and problems identified and solved. Furthermore, live graphs produced by the Beef Monitor while the cattle were being weighed showed that there was reduced growth following the movement of cattle indoors, a change in diet and new animals being added to the pen.

## WHAT HAS CHANGED ON FARM

### Conclusion

The Beef Monitor is a useful tool in the cattle finishing enterprise and has shown to be versatile as it can be built into a rotational grazing system and also moved inside, maximising its use. Difficulties in moving the monitor arise from water supply and as such careful planning of future water pipes between rotational grazing paddocks is key.

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Cattle monitoring has proved a success as all animals are within market specification in regards to weight. Furthermore, with additional batches and associated information the beef monitor has potential to increase knowledge of cattle selection to ensure maximum growth and therefore return on investment is achieved.

## Key Points

- The beef monitor can be built into a rotational grazing system.
- AA cattle performed well at grass and at hard feed, proving that if suitable forage can be grown it is a low cost way to finish animals.
- Animal growth rates vary significantly, and careful monitoring and evaluation can identify the poorest performers.

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