

THEME REPORT

NORTH AYRSHIRE MONITOR FARM Improving Cattle Performance at Housing

THE CHALLENGE

HOUSING ALTERATIONS AND CATTLE PERFORMANCE

The finishing cattle were not performing as well as was hoped, so John and the community group explored the possible reasons behind this and what could be done to help improve performance. It was found that there was inadequate ventilation in both sheds and insufficient water access in the straw-bedded shed. Also, cattle were preferentially feeding, particularly in the cubicle shed where the stocking density was higher.

Data analysed showed that the cattle at Girtridge overall had lower DLWGs and therefore were on-farm longer than desired, although there was a group (circled green in the graph below) that performed well whilst at Girtridge.

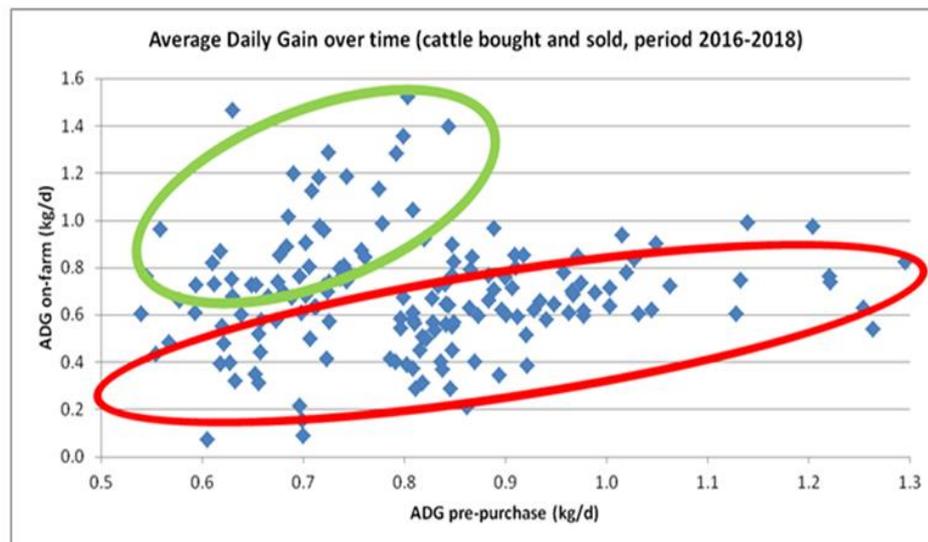


Figure: DLWGs pre-purchase vs on-farm

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WHAT WE DID ON FARM

VENTILATION

An assessment was carried out on Girtridge's sheds. When assessing a building you must consider space, fresh air, air speed, moisture, temperature and hygiene of the shed. The target windspeed within buildings is 0.5 m/s. The average wind speed in UK >4.5 m/s. Any gap wider than 25 mm does not control air speed, it increases it. When wind speed reduces so does the ventilation rate.

As a rule of thumb for ventilation:

- For adult cattle - outlet in the ridge needs 0.1 m² per animal.
- Inlets in each sidewall need to be a minimum of the calculated outlet; twice for higher yielding cattle.

Assessment of Girtridge's Buildings:

Straw Bedded Court

OUTLETS REQUIRED = 11.25 m² at ridge height **OUTLETS ACTUAL = 2.68 m² at ridge height**

INLETS REQUIRED per side = min 11.25 m² **INLETS ACTUAL = 3.3 m² on each side**

Issues

Outlet was only 24 % of requirement. Restricting growth, increasing respiratory disease risk, and increasing the requirement for straw. Inlet was also restrictive at only 29% of requirement. Need to increase outlet at ridge level and need to increase inlet to a minimum of 11.25 m² on each side.

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Solution 1 - Outlets

Remove ridge caps (some, not all!)

COST Hire of cherry picker (£80)

PAYBACK: An increase in growth rate of 1,470 kg LW per 7 month housing period.

DOWNSIDE: Rainfall concerns. However, the water that comes in the gap in one year is less than the cattle inside the building produce in three days.

Solution 2 - Outlets

Galebreaker Lightridge or similar at £110 per linear metre.

COST: £4,620 (based on 42 m)

PAYBACK: 22 months, then increase returns by approx. £2,940 p.a.

Inlets

Ventair Sheeting is excellent for gable ends and exposed sides BUT is massively restrictive.



Considering ridge options to increase air outlets

Solution Suggested

- Remove fixings from the bottom of the Ventair sheeting.
- Weld metal spades to the steel work so that the bottom wooden purlin can be moved higher to leave at least 200 mm gap between the purlin and the top of the solid wall.
- Fix a timber batten to the top of the relocated purlin so that the Ventair sheet is pushed out at the bottom to leave a 200 mm horizontal gap between the Ventair sheet and the solid wall.
- The above action will create an additional 0.2 m x 42 m gap along each side = +8.4 m²

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Cubicle Shed

OUTLETS REQUIRED = 10.4 m² at ridge height
height

OUTLETS ACTUAL = 2.75 m² at ridge

INLETS REQUIRED per side= min 10.4 m²
fully open side.

INLETS ACTUAL = 4.9 m² on backside plus

Issues

Outlet is only 26% of requirement. Inlet is also restrictive at only 47% of requirement (one side).

Impact of restrictive back wall as well as uncontrolled wind speeds along the front of building should not be underestimated.

Solution 1 - Outlets

Remove ridge caps (some, not all!)

COST: Hire of cherry picker (£80)

PAYBACK: 1,260 kg LW per 7 month housing period.

DOWNSIDE: Rainfall concerns - rain will fall on cubicles.

Solution 2 - Outlets

Galebreaker Lightridge or similar at £110 per linear metre.

COST: £2310 (based on 42 m)

PAYBACK: 6.5 months, then increase returns by approx. £2,520 p.a.

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RATION & WATER

The silage was analysed as well as a feed budget calculated for Girtridge. Karen Stewart and Gavin Hill, SAC Consulting, noticed whilst observing the cattle in the cubicle shed, that they were preferentially feeding with the first cattle at the feed barrier sorting the ration, taking the concentrates out of the ration first.

A ration was tailored to suit the different weights and types of cattle at Girtridge using the silage and John's home-grown barley as the primary ingredients in the ration. The community group agreed with Karen Stewart and John Howie that the DLWGs were not high enough and so to increase the concentrate in the ration.

It was also noted that in the straw shed there were only four nose drinkers, which may be limiting water intakes and thus depressing feed intakes. Karen quoted that "cattle require 5.4 litres of water per kilo of DMI" – water provision could be improved at Girtridge in the straw shed. The recommended water flow rates is 10 l/ min and the water depth should be a minimum of 80 mm to allow muzzle to be submerged 20-50 mm. Cattle can intake up to 10% of bodyweight per day.

- Growing and Finishing Cattle: "What Weight By What Date" – use their current weight and set a target weight by a certain date. Then you can formulate a ration which should meet the required DWLG.
- It is important to monitor how cattle are doing on a ration - If cattle are not performing as well as expected, check if cattle are eating as expected (e.g. not clearing up too soon or feeding left untouched) or consider other factors i.e. Health, Environment, Genetics and Water.
- Know weights of cattle and know the weights of feed given.
- Ensure sufficient access to feed and water.

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THE RESULTS

- **Ventilation Straw Court** - The inlet has been increased by removing a layer of blocks along the top of the wall in the straw courts, costing £1,500. The outlet is yet to be increased and John plans to remove some of the ridge panels.
- **Ventilation Cubicle Shed** – The inlet has been increased by stripping sheets (with 2 inch gaps) on 3 bays, costing £675. John is planning on stripping the rest of the sheets on that side of the shed. The outlet is yet to be increased and John plans to replace the existing closed ridge with a fixed open ridge.
- **Water Access** – 4 nose bowls were replaced with 4 troughs in the straw-bedded shed which will help improve water intakes, resulting in higher feed intakes (approximately up to 60 litres/day required for growing or finishing animals).
- **Rations** – Stocking density in cubicle shed was reduced and molasses added to ration to prevent cattle sorting the feed. Rations were also tweaked to the following:



John Howie and the community group discussing alterations that could be made.

Feed	475kg 1.3kg/day	600kg 1.5kg/day	GROWING X 1kg/day
Pit silage (50/50 1 st and 2 nd cut) (£15/t)	12kg	12kg	Ad lib
Propcorned bruised barley (£188/t)	6kg	8.5kg	4kg
Hi pro soya meal (£360/t)	0.5kg	0.5kg	0.5kg
Stockmol 20 (£172/t)	0.5kg	0.5kg	0.5kg
Intensive mineral (£371/t)	0.1kg	0.1kg	0.1kg
Cost per day	£1.61	£2.08	£1.27
Cost per kg gain	£1.20	£1.40	£1.27

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WHAT HAS CHANGED ON FARM

Cattle Performance

- 2017/18 year average: 0.8 kg/day
- 2018 at grass: 0.5 kg/ha
- 2018/19 in the shed: 1.04 kg/ha (John believes DLWGs have since improved following ventilation, water and ration changes have been made).

Although these alterations are relatively low cost and easy to implement, they may prove to make a noticeable difference to the profitability of the finishing system, with cattle also reaching finishing weights quicker. Cattle performance will continue to be recorded and time will tell if these changes have been worthwhile.

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