

'Lean' cattle farming

Conor Colgan, North Northumberland

Conor Colgan, a beef and arable farmer from North Northumberland, recently completed an MBA at the Royal Agricultural University on applying the principles of 'Lean' to his farm.

'Lean' is a production practice that aims to reduce waste along a supply chain to create more value. The technique originates from car manufacturer Toyota.

Conor has around 100 pedigree Saler cows and sells finished bulls and breeding heifers. When he applied Lean thinking to the cattle enterprise, ideas generated included:

- Selling more and younger heifers for breeding
- Improving the rationing of the bulls to reduce slaughter age, to save feed costs over their lifetime
- Keeping more cows as shed space would be freed up from selling stock earlier
- Using Estimated Breeding Values (EBVs) to improve growth and heifer selection
- Ploughing up grassland to allocate more land to the arable enterprise to increase gross margin per hectare (ha)

Allocating more land to arable crops means the remaining grassland needs to work harder. Historically around 220kg Nitrogen (N) per ha per year (176 units per acre) have been applied across grazing and silage land.

Planned grazing for 2014

Conor wants to take a more planned approach to rotational grazing. He tried this system in 2013, but grass quality and quantity varied – there was too much early on and not enough later.

A feed budget has therefore been used to predict what is likely to happen this year. It has been assumed that the cows are around 680kg liveweight and will eat around 2.5% of their liveweight (17kg Dry Matter (DM) per day), which should cover calf intakes too.



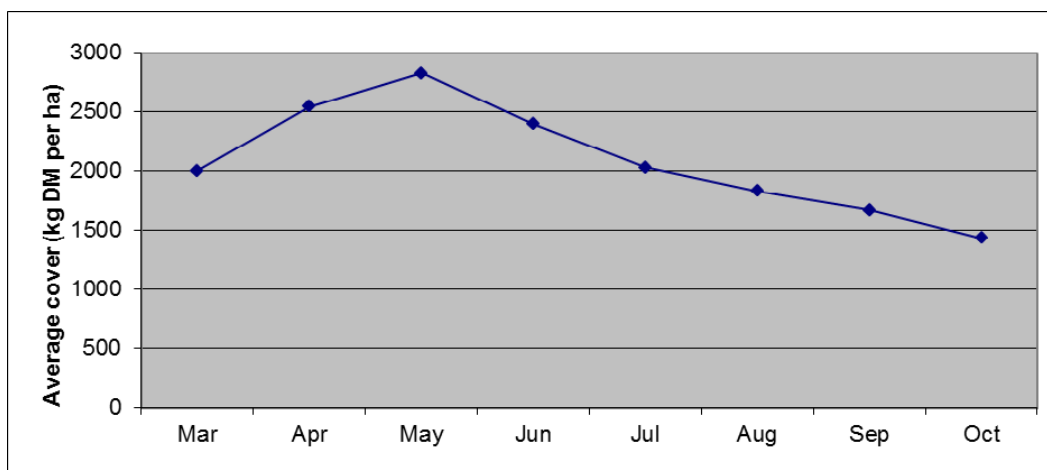
Measuring grass growth

Example feed plan

On the Dunsall rotation, 47 cows and calves will be turned out in mid-March into fields with an initial grass cover of 1800kg DM per ha. They will have access to all fields 30ha (73 acres) in March and August to October, 25ha (61 acres) in April, 18ha (44 acres) in May and June, and 25ha (61 acres) in July. Some fields will come out of the rotation due to silaging.

The graph below shows the predicted cover measurements for the paddocks in the rotation. Grass growth peaks in May at around 2,700kg DM per ha. This is rather high so Conor could cut more silage to bring this down.

The graph also shows that cover is getting low from August onwards, so after monitoring through the season, Conor may decide to apply N strategically in late summer to boost grass growth then.



Refining the grazing plan

A rotation planner has been used to refine the plans further – the graph on the previous page shows that there is roughly enough grass, but will the rotation work?

The target pre-graze cover is 2,300kg DM per ha and target residual (the height of the sward when the animals leave) is 1,800 kg DM per ha. A net grass growth of 30.1kg DM per day is the aim.

ROTATION PLANNER	
Pre-graze cover (kg DM per ha)	2,300
Target residue (kg DM per ha)	1,800
Grass growth rate (kg DM per ha per day)	43
Utilisation (%)	70
Net grass growth rate (kg DM per ha per day)	30.1
Number of paddock in rotation	5
Average size of paddock (ha)	6
Length of time in paddock (days)	5
Duration of rotation (days)	25
Available feed while in paddock (kg DM)	3903
Number of stock	47
Average weight (kg)	680
Daily dry matter intake (kg DM per head)	17.0
Potential daily intake (kg DM)	16.61
Predicted pre-graze cover (kg DM per ha)	2,400

There are five paddocks in the rotation of 6ha (14 acres) each. The animals will stay in a paddock for five days, giving a rotation length of 25 days. This means the cattle return to a paddock after over three weeks.

For this rotation planner, the daily DM intake figure (kg DM per head) and potential daily intake (kg DM) need to match and in this example they just about do. So there should be enough grass – even at 70% utilisation (i.e. wasting 30%) to meet the animals' feed demands.

The predicted pre-graze cover (kg DM per ha) and the pre-graze cover (kg DM per ha) should also match and these nearly do too.

These are useful exercises to 'play' with when planning grazing for the forthcoming season. To make sure these work in practice, Conor will assess feed demand prior to turnout and assess grass growth on each field to check initial farm cover.

He will also measure and record grass levels on each field at least every two weeks throughout the growing season. This will tell him exactly what is happening in each paddock and highlight whether the stocking rate is appropriate for the time of year.

Further reading

Conor, with George Adam and Federico Topolansky, has published a paper 'Why try Lean? A Northumbrian Farm case study' in the International Journal of Agricultural Management (2013) Volume 2, Issue 3.

Also see pages 16 and 17 of the EBLEX BRP manual, [Planning Grazing Strategies for Better Returns](#), for an example feed budget. An Excel version can be requested by emailing liz.genever@ebllex.ahdb.org.uk.