A clear solution for farmers

CATCHMENT SENSITIVE FARMING

Catchment Sensitive Farming

Farm Business Benefits Case Study 7

Intensive grazing: **Boode Farm**

The farmer has made financial savings of £22,990 per year from using an intensive grazing system that is entirely consistent with Catchment Sensitive Farming principles.

The benefits have resulted from:

- More milk from grass – leading to reduced reliance on more expensive conserved forages
- Less slurry produced due to shorter housing times – reduced cost of slurry storage and spreading
- Labour savings
- Improved cow health and welfare

The farm

Boode Farm is in North West Devon and the main farm extends to 165 hectares (408 acres). A further 57 hectares (141 acres) is rented at Halsinger, 2km to the north east of the farm.

Gavin Fowler is the third generation of the family to farm at Boode and the business is run as a partnership with his father. The farm was traditionally a mixed enterprise business with dairy, sheep, pigs and arable. The last of the sheep were sold in 2006 but a small area of arable remains, with the principle focus being the dairying.

The predominant soil type found across the farm is clay loam. Annual rainfall at the main farm is approximately 750 mm (30 inches) compared to 1000 mm (40 inches) at Halsinger. Rainfall over the summer months can often be minimal because the farm lies in a rain shadow. This is principally caused by the sand dunes at Saunton Sands which lie 4km due west. This lack of summer rainfall and its impact on grass growth has influenced the decision to operate an autumn calving herd.

All the milking cows graze at Boode Farm. Dry cows and youngstock graze at Halsinger and there is also silaging ground, a small amount of arable and areas in Environmental Stewardship on this rented land.

Maximising Grazing Efficiency

A controlled grazing system maximises the efficient use of the grass, thereby minimising waste and avoiding poaching. Gavin monitors the sward height on a weekly basis using a plate meter. This allows him to plan the allocation of grass for each feed and in turn, the length of the grazing rotation depending on the rate of grass growth. This is vital when summer rainfall is low as it ensures that cows make best use of the grass, thereby minimising the need for buffer feeding.

When grass swards need to be rejuvenated, Gavin over-sows rather than ploughing and re-seeding as this is cheaper and maintains soil structure. It also reduces the environmental risk of soil run off or nutrient leaching.

A key benefit of the grazing system has been to reduce the housing period for the cows from around seven months to four and a half months overall. This has delivered substantial savings:

- Greater use of cheap grazed grass rather than conserved forage – this equates to savings of at least 0.5p per litre
- Reduced slurry storage and spreading costs because less slurry is produced as cows are housed for a shorter period
- Labour savings – cows at grass are less labour intensive and silage making, slurry spreading and feeding all have a significant labour requirement
- Improved cow health – if managed properly, cows at grass are generally healthier than when housed for long periods

Cow Tracks

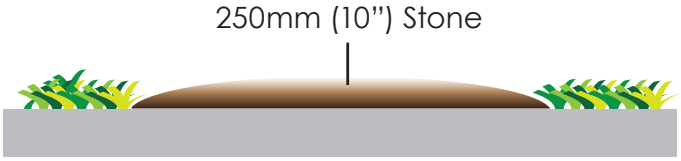
Well constructed and maintained cow tracks are essential to making the best use of grazed grass because they:

- Get cows to grazing paddocks without causing poaching
- Allow multiple access points into and out of grazing paddocks
- Avoid cows having to walk over the same piece of ground twice when field conditions are suitably dry for grazing but still wet around gateways
- Reduce the occurrence of lameness within the herd

Gavin believes that the money he spent on the farm tracks was one of the soundest investments he has made, allowing the grazing season to be extended and utilisation of the grass to be increased.

Some of the tracks were constructed from stone quarried on the farm, which was simply laid on the surface to a depth of around 250 mm (10 inches), cambered to provide drainage, and compacted down.

This is shown in figure 1



On parts of the farm, suitable track stone already existed below the topsoil. To create the track, the topsoil was removed, the stone dug up, the trench filled with the topsoil and the stone put on top to form the track, and compacted to create a cambered hard surface.

Planning Cow Tracks
The key to success when installing cow tracks is good planning. Careful design of the network of tracks, taking into account maximum utilisation of the grazing platform, will ensure that the investment made is rewarded.

Aim to:
- Have separate tracks for cows and vehicles
- Allow access to grazing from both sides
- Make straight tracks to maintain the walking speed of cows
- Plan water trough sites so pipes can be laid

Avoid:
- Siting tracks behind hedges as there will be less wind to dry the track surface
- Constructing tracks in a hollow as water will quickly erode the surface
- Over-using gateways by creating several field entries

When planning tracks, do not restrict the location of tracks to field edges; sometimes it will be appropriate to run a track through the middle of a field in order to provide the best access to grazing.

Track Construction and Drainage
To construct a long lasting track that will require minimal maintenance and will maximise the smooth running of the grazing system it is important to:
- create a good camber and combine track and field drainage
- construct fences next to the sides of the track to avoid soil contamination
- consider making a standing area around water troughs and areas that will be prone to poaching
- make tracks wide enough for the level of traffic

Avoid:
- constructing tracks when ground conditions are wet as machines will pan the surface
- removing topsoil unless absolutely necessary
- making the track too flat – aim for slopes of 1 in 20 to 30, as a 4 metre track needs 15 to 20 cm of fall over this distance
- using sharp stones near the surface of the track to prevent bruising of the cow's feet

The Right Cow for the System
After adopting this grass based system, Gavin recognised that having the right cow that was suited to living outside for most of the year and thriving on a grass-based diet was the key to success. He decided to opt for a cross-bred cow to give him a smaller but robust animal that doesn't cause poaching damage on the steep slopes.

By crossing a Montbeliarde to a Scandinavian Red and then crossing the progeny back to a Friesian for the third cross, Gavin has achieved his goal of an animal that performs well, yielding on average 7500 – 8000 litres with minimal health issues. His calving interval of 369 days coupled with low somatic cell counts and enviable herd health is testament to this.

The fertile cross-bred cows have also proved to be well suited to the autumn block calving system. Achieving a tight ten-week calving pattern has enabled Gavin to spend the rest of the year focusing on pertinent farm management issues.

Other Catchment Sensitive Farming Measures

Tackling the Risk of Soil Erosion
Gavin has experimented with different options to reduce soil erosion risk prior to establishment of the maize crop in the spring. His favoured strategy is now to sow down an Italian ryegrass dominated temporary grass ley following the harvesting of the wheat crop in late summer. This gives green cover over the winter, therefore reducing the risk of erosion. It also provides much needed early bite for the herd in February when it can be grazed without the worry of damaging summer grazing or silage ground. These areas are then ploughed in March in preparation for growing maize under plastic.

Improving Soil Structure
Gavin has developed a soil improvement programme that aims to improve nutrient utilisation and reduce the reliance on expensive inorganic fertilisers by making best use of available organic manures. A key element of this programme has been soil aeration across the grazing platform. By inspecting soil pits in order to identify compaction, it is possible to observe whether compaction is on the surface or at depth.

Surface compaction is tackled by twice yearly passes with a slit aerator. Compaction that is located lower down the soil profile is dealt with by sub-soiling the field prior to maize or wheat crop establishment.

Slurry Storage

When the new NVZ regulations were introduced in 2009, Gavin was conscious that his slurry storage was not compliant with the rules as he did not have sufficient capacity for the slurry produced by his 280 cow herd. Extending the slurry store so that it could accommodate the additional volume would have necessitated a large investment for which there is was no available grant aid.

Limiting the amount of water reaching the slurry storage tank was the other option available to Gavin. If this could be tackled, not only would it negate the need to build additional storage, but it would also reduce the amount of tanker loads of slurry to be spread which represented a further potential cost saving.

A two pronged approach to the problem was chosen by Gavin, both of which secured grant funding of 40% from the Catchment Sensitive Farming Capital Grants Scheme:

- Slurry separator - by separating off the liquid fraction of the slurry and storing only the solid portion, the existing slurry storage facilities were able to contain the equivalent 5 months production of slurry
- Covering the slurry storage area – by completely enclosing the slurry storage area, Gavin has reduced the amount of rainwater entering the slurry storage, thereby increasing the number of months storage capacity

Evaluating the Financial Benefits

The biggest saving made as a result of the switch to a New Zealand type grazing system at Boode Farm arises because of the greater reliance on cheaper grazed grass rather than conserved forage. The additional costs of cutting, baling, wrapping and storing silage coupled with the loss in nutrient value when grass is wilted/conserved, means that conserved forage is £22 per tonne dry matter more expensive than grazed grass (£94 per tonne DM compared to £52 per tonne DM).

Reducing the housing period and therefore the volume of slurry produced is the other major cost saving. This is because of the cost of spreading the slurry but also the investment that would have been required in order to comply with the NVZ regulations.

Savings made as a result of implementing all the measures outlined above are detailed in table 2, below.

Table 2: Financial Benefits of Measures adopted at Boode Farm

Measure	Outcome	Cost saving per annum	Cost saving per Litre
Greater reliance on grazed grass	• Improved utilisation of grazed grass which is cheaper than conserved forage • Reduced housing period	£11,880	0.5p
Improved slurry management: • Use of slurry separator • Covering of slurry storage area	Less water entering slurry store Increased slurry capacity therefore no need to increase storage Reduced spreading cost	£1,860 (spreading) £2,400 (storage/ depreciation) £3850 (labour)	c. 0.25p
Soil improvement programme: • Temporary winter grass ley • Greater use of manures • Soil aeration	• Provision of early bite in February prior to maize establishment • Reduced reliance on fertilisers • Better grass growth	Accurate cost saving difficult to estimate	

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