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# Moving towards future proofing the beef enterprise

**Newton Farm**, Scethrog, Brecon, Powys, LD3 7YG 15/11/2018

## Speakers

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# Newton Farm Facts

## Land

- Newton Farm comprises 650 acres, 450 acres owned, 200 rented, within the Brecon Beacons National Park.
- The farm includes 80 acres of woodland and scrub.
- The farm is within the Glastir Advanced scheme since 2015.

## Livestock

### Beef

- In 2012, Stabiliser cows were introduced to the herd. There are currently 90 breeding females on the farm and two Stabiliser bulls. AI has also been used to improve genetics.
- Bull beef finishing has been done for 2 years.

### Sheep

- 1,050 breeding ewes are kept, with 260 replacement ewe lambs, 100 of which were tupped last autumn.
- The flock consists mainly of Suffolk cross Mule with 100 Aberfield cross ewe lambs.
- A mixture of Innovis genetics is used – Abermax and Aberfield, and some Charollais rams.
- Teaser rams are used in early September; before rams are introduced in the last week of the month. Ewes are scanned in early December; housed and sheared before Christmas.
- In 2016 the scanning percentage was 192% for the main flock and 175% for yearlings.
- On housing, ewes self-feed on silage clamped in two pits, with feeding barriers across the four faces moved 10cm each day.
- Singles are fed silage only, with concentrates fed to triplets four weeks before lambing and twins two weeks before.

- 90% of ewes lamb between February 18th and March 5th.
- By the end of June 800 lambs are marketed at an average weight of 19.5kg.

## Cropping

- 55 acres of cereals grown on the farm.
- 250 acres of grassland has been rejuvenated with clover and grass, leading to better quality pasture, in order to finish lambs off grass in a shorter period.
- Red clover is included in silage production as a source of high quality home-grown protein to decrease finishing costs of lambs post-weaning.
- A wildlife cover crop was planted last year and been used by the Llangorse Bird Ringers Group to monitor bird species and numbers.
- In 2013, plantain, a herbal mix and normal grass leys were grown on the farm as part of a Farming Connect Farming Innovation Fund trial on finishing lambs. The performance and longevity of the crops continues to be monitored.

## Additional information

- The business includes a self-catering holiday cottage.
- Primary school children are welcomed to the farm each year.
- Environmental schemes have protected hay meadows and provide nesting sites for lapwings.
- 15km of hedgerows have been created and restored, providing corridors for wildlife.
- The business has worked with the Vincent Wildlife Trust to restore hedgerows in key flight paths of the rare Lesser Horseshoe bat.
- They currently are working with CADW and the Brecon Beacons National Park Authority to restore the site of an Iron Age hillfort on the farm. Ten Highland cattle have been bought as conservation grazers.

# Grazing Livestock on Fodder Beet

## Why Fodder Beet?

Fodder beet is a very high yielding and energy dense forage crop, which if managed well can produce good growth rates and very high stocking rates and at a very low cost. Effectively the crop can increase output while reducing the costs of feeding stock.

## Yields and Costs

Fodder beet can yield from 15 to 30 tonnes of dry matter per hectare depending on growing site and inputs. This compares very well when compared to swedes and kale where expected yields are in the region of 6 to 10 tonnes of dry matter per hectare.

Crop costs are expensive at around £1,100 per hectare, as shown in table 1 below. However on a pence per kilogram of dry matter basis, the crop is very cheap and can be grown at a cost range of 3.75 to 7.5 pence per kg of dry matter dependant on yield (As shown in table 2). This works out very well compared to grass at 6p per kg of dry matter, silage at 12p per kg of dry matter and concentrates at 25p per kg of dry matter.

**Table – 1 Crop Costs per Hectare**

Item	Cost/ha (£'s)
Seed	188
Lime	75
Fertiliser	198
Spray	160
Contracting	255
Rent	250
Total	£1,126

**Table 2 – Dry matter Yield and Cost per kg of Dry Matter**

Dry Matter Yield	Pence per kg/dm
30 ton/dm/ha	3.75
25 ton/dm/ha	4.50
20 ton/dm/ha	5.63
15 ton/dm/ha	7.51

## Site Selection

Site selection is very important for successfully grazing livestock on fodder beet. As there is a much bigger yield of crop with fodder beet, the stock move across the field at a slower rate and will poach the field to a heavier degree. Therefore it is important to pick a site that is free draining.

It is also important to ensure that the field isn't too steep to prevent runoff from the field. It is also important that either the field site is away from watercourses or field buffer strips are put in place where stock are not allowed to graze.

The field should ideally have multiple gates to allow stock to be moved in and out during periods of severe weather and all gateways and watering points should be targeted with stone/hardcore.

## Establishment & Variety Choice

Fodder beet is a more complex crop to grow than other forage crops and will require specialist machinery. The crop will initially require ploughing with a fine seedbed being created. The crop will require 110kg/ha of N, 60 kg/ha of P and 340 kg/ha of K at SNS index 2 and P & K Index 2 (See RB209 for more detail). The crop also requires a pH of 6.5 and will also need an application of 200kg/ha of sodium. The crop will then need to be precision drilled, followed by a pre-emergence herbicide spray and usually two post emergence herbicide sprays. The crop may also require one or two fungicide sprays. It must be remembered that the sprayer will need to be high pressure low volume.

Variety choice is very important for grazing fodder beet with the system requiring a low dry matter type fodder beet which grows 50% or more out of the ground. High dry matter types will grow more in the ground are harder to eat and are suited to lifting.

Seed rate is also important, with a lower rate required for grazing as this will make the bulb grow further out of the ground. Seed rates of 36,000 to 40,000 per acre are recommended for grazing compared to 45,000 per acre plus for lifting.

## Feed Budgeting

Feed budgeting of the crop is very important as you will need to feed livestock for a set period during the winter based on an estimated yield at the start of the year. You will then also have to look at adding silage, haylage and straw to the crop to meet roughage demand from the cattle. As a rule of thumb you could assume  $\frac{3}{4}$  of the diet coming from the fodder beet and  $\frac{1}{4}$  coming from silage for a suckler cow. For instance if a dry cow required 12kg of dry matter this would mean 3 kg coming from silage and 8kg coming from the fodder beet. The example below shows the workings for 100 dry suckler cows based on a 5 month winter:

### Fodder Beet

150 days  $\times$  8kg of fodder beet = 1,200kg dm of fodder beet

1,200kg dm of fodder beet  $\times$  100 cows = 120,000kg of dry matter  
(fodder beet for 150 days)

Assuming 20,000kg/ha crop, 6 hectares will be required for the 5 months.

### Silage

150 days  $\times$  3 kg of silage = 450kg dm of silage

450kg dm of silage  $\times$  100 cows = 45,000kg of silage (silage for 150 days)

Assuming a bale weighs 600kg and is 50% dry matter (300kg dm), 150 bales will be required for the winter or 1 bale a day.

## Setting up the field for winter

Based on the above workings 120,000kg of fodder beet is required for the 150 day winter. If this is divided by 150 days = 800kg dm day.

Based on a 20,000kg of dry matter yield per hectare. If the requirement per day is divided by the yield per ha it will give you the daily requirement or in this case:

$800 / 20,000 = 0.04$  hectares or 400 square metres/day.

Therefore a 100 metre x 4 metre area is required per day together with one bale per day.

The picture below shows the stabiliser cattle grazing winter 2017 with Richard moving the electric fence forward, with silage bales already placed in the field:



## Transition

Transition to the crop is vital for cattle as they can die of acidosis if they are not adjusted slowly onto the crop. A transition is not required for sheep for acidosis but they should be adjusted over a period of 4-5 days.

The full transition should take place over three weeks but the initial stage will take 2 weeks. Initially the cattle may be slow to eat the crop and silage may need to be held back to make them hungry. Once they have the taste for the crop there is a need to ensure they do not gorge on the crop and they will need to be held back. An ideal transition period is shown below:

### Transition:

**Day 1:** Aim to allocate 1 to 2 kg DM of Fodder Beet plus 10kg DM of Silage  
Increase Fodder Beet by 1 kg every other day.

**Day 14:** 8kg DM of Fodder Beet plus 2-4 kg DM of Silage. Maintain for a week.

**Day 21:** Ad Lib Fodder Beet plus 2 kg DM of Silage.

## Managing adverse conditions

During a period of extreme weather it is vital that management time is increased to firstly help maintain the welfare of the cattle but secondly to avoid soil damage and runoff.

Back fencing should be used regularly to stop cattle walking back and forth over the same ground and causing excessive poaching.

- Temporary water troughs should be used and moved with the cattle to stop excessive walking and poaching
- Bales should be placed into the field prior to the winter to avoid machinery entering the field and causing more soil damage
- A straw pad or runback should be provided if conditions deteriorate to allow the cattle to lie down, alternatively they may need to be housed for a short period.





# Improving the performance of suckler herds

Making a margin from suckler cows is never easy but there are several areas that can usually be improved on. These include improving herd fertility, calf growth rate and making the best use of resources.

## **Benchmark herd performance**

Working out the physical and financial performance of your herd is a good starting point so that any deficiencies can be identified, and an action plan drawn up to rectify problems. It is advisable to include your vet and nutritionist in this process as well as looking at industry benchmarks such as the Farm Accounts Survey and joining a group of likeminded farmers. Farming Connect's Measure to Manage tool is an excellent way to commence the benchmarking process and within this there are several suckler cow groups that you can join.

## Targets for suckler herds

Industry benchmarks for physical performance have been identified as being achievable in most years. It is, however, often difficult to achieve consistent performance year on year due to extreme weather events, health issues occurring or other issues that may adversely affect performance. However, with a sound plan and attention to detail on the issues outlined below the chances of achieving these targets consistently increases.

Item	Target	Definition
Barren cows	< 5%	188
Cows calving	95%	Cows and heifers to bull
Calving in first 3 weeks	65%	Of cows calving (start of calving 285 days from bulls in)
Bulling period	9 weeks	Cows
	6 weeks	Heifers
Calf mortality – During pregnancy	< 2%	
Calf Mortality – Birth to Weaning	<3%	
Calves reared	94%	Of cows/heifers to bull
Difficult calvings	< 5%	Requiring assistance, no caesareans

## Herd Fertility issues

Tacking herd health in conjunction with your vet should be a priority. This could involve looking at records of any previous issues, blood testing, joining health schemes and adopting a vaccination policy against some diseases.

Avoiding difficult calvings should be achieved by the correct choice of bulls for the cattle you have, making use of Estimated Breeding Values (EBVs) for calving ease and gestation length when purchasing bulls. Managing cow body condition also plays a part in this. Research has shown that cows that are too fat at calving will have higher requirement for assistance at calving and hence have higher calf mortality.

A compact calving is an excellent indicator of general herd fertility, it gives more choice of early born heifers as replacements and it concentrates the labour required at calving time so more attention can be focussed on the task. Many aspects of herd performance contribute to achieving a tight calving but discipline with bulling dates is one of the main issues. A herd of fertile cows should not need to be bullied for longer than 9 weeks with heifers getting 6 weeks. Any cows or heifers not in calf in this period should be considered sub fertile and earmarked for culling.

Make sure that bulls are fit for work and not over fat and not used immediately after purchase when they may have been fed for the sale. It is also advisable to get your bull's semen tested annually at least 2 months before they are required so any infertile or sub fertile bulls can be identified and replacements sought if required. As regards bull power it is advisable to only give young bulls around 20 cows in their first season with more experienced bulls getting 40-50 cows (if semen tested). If bull power is not adequate, then consider using AI as an option to access high quality genetics.

Managing cow body condition on a year-round basis is probably the most crucial aspect to get right and often other issues will correct themselves if the cows are in the correct body condition. Generally, for spring calving cows this involves putting on condition up to and beyond bulling at grass to achieve good conception rates, then the calves will be weaned in the autumn with the cows in fit condition (over bcs 3) which can then be utilised over winter, saving on winter feeding, then calving down at condition score 2.5 to reduce calving problems.

## Heifer management

Whatever your replacement policy it is important to bull your heifers to calve early in the calving period. Many farmers bull heifers ahead of the main herd but this should not be necessary in a fertile herd with a tight calving as there will be plenty of early born heifers to choose from. More heifers than are required can be bulled for the six weeks and any that do not get in calf can be sold. If breeding your own replacements then using bulls with good EBVs for maternal calving ease, milk, 200-day weight and scrotal circumference which has shown to be directly attributable to the bulls' daughters fertility and the age they reach puberty; all of which will help to breed better suckler cows.

Calving at two years of age is achievable and only requires modest growth rate targets to be met. However, it is important to look after these heifers as they are still growing so give them an easier calving bull, manage them in a separate group with the correct nutrition and give them preferential treatment post calving, including up to their second calf. In a small herd some of these factors may be more difficult to achieve so perhaps using AI is an option.



## Calf growth rate and reducing weaning check

Achieving good weaning weights and keeping calves growing beyond weaning also plays an important role in herd profitability. Using bulls with good EBVs for 200 day weight, having milky cows managed for body condition, good grassland management, creep feeding and leaving bull calves entire are all tools at our disposal to help achieve growth rates in excess of 1.2kg/hd/day while on their mother.

As the season progresses creep feeding can be introduced which will help to develop and acclimatise the rumen, reduce weaning check and lessen the chances of pneumonia and other diseases occurring. Creep feeding is generally cost effective as the Feed Conversion Rate will be good in young calves and extra weight gain is usually seen. Gradual weaning is a practice now commonplace, again designed to avoid stress at weaning. Once weaned the calves should be put on a good diet of high quality forage and a 16% concentrate to maintain growth rates.

## Cow efficiency

Cow efficiency, expressed as a percentage of cow weight is a new measure that takes into account herd fertility and calf growth rates. It is calculated by dividing the total weight of calf weaned (adjusted to 200 days) by the weight of cows that went to the bull  $\times 100$  (see example below). A high figure is better than a lower figure with a target of 50% being achievable with small to medium sized, fertile, milky cows, rearing a high % of calves and put to bulls with good growth rates. While it is a herd measure, and should take into account infertile cows, calf deaths etc it is also possible to use this measure to evaluate the efficiency of individual cows within a herd.

Example with 100 cow herd, cows weighing 650kg, 90 calves reared at 270 kg adjusted weight.

Total weight of calf reared	$90 \times 270 =$	24,300kg
Weight of cows bulled	$100 \times 650 =$	65,000kg $\times 100 = 37.4\%$

## **Making good use of resources**

This is where the whole system comes together to achieve a successful outcome. Issues such as having the correct type of cow for the farm and feed available, calving at the right time to suit pasture production and labour availability and also whether there are options for reducing the cost of wintering by growing forage crops all come into play. Every farm is different and sometimes it takes another pair of eyes to see the options you have. This is where joining a discussion group or looking at other systems on other farms is very useful.

## **Newton herd performance**

- Calving index has reduced from nearly 400 days in 2013 (before Stabilisers were introduced) to around 365 days in 2017 and 2018. Good indicator of tighter calving and herd fertility.
- In 2018 73% of cows calved in the first three weeks with 96% in six weeks.
- 2018 bulling period was 11 weeks for cows and 9 weeks for heifers.
- 2018 heifer calves weaned at 256kg (46% of mature cow weight).
- 2017 heifer calves weaned at 253kg (40% of mature cow weight).
- 2018 creep fed bull calves (entire) weaned at 316 kg (52% of mature cow weight).
- 2017 creep fed bull calves (entire) weaned at 327 kg (51% of mature cow weight).

## Bull Beef Performance

- All bulls left entire and finished intensively.
- Creep fed from September onwards to reduce weaning check and get onto finishing diet.
- Weaned Mid November at ca 8 months of age.
- Home grown barley treated with Maxammon additive with intention to raise protein levels.
- Generally, mainly R grades, some U's (some previous continental genetics still filtering through perhaps?).
- Carcass weights of 380-385 kg, killing out at 58% (655kg LW).
- Finished at 13-15 months.

This is an efficient way to produce beef especially where buildings and home-grown grain are available and there is a marketing scheme in place for Stabiliser bulls via Morrisons.





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