

## Low-cost, outdoor forage system for dairy-bred beef

Last October, work to investigate the feasibility of a low-cost dairy beef production system was launched with the aim of maximising output from forage and minimising wintering costs.

The trial, led by ADAS and Harper Adams University with funding from AHDB and additional support from the Hereford Cattle Society and Dunbia, will investigate the feasibility of rearing and finishing cattle from the dairy herd using predominantly grass and fodder beet. The study involves 35 Hereford x Holstein-Friesian and 35 Holstein-Friesian October-born steer calves

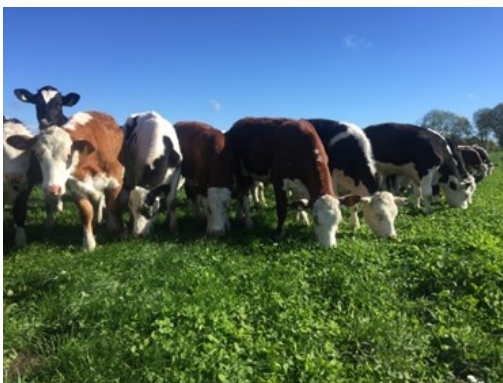


The aim is to create a low-cost, intensive grass and forage-based system which will maximise stocking rates through the use of intensive rotational grazing and out-wintering on fodder beet, while minimising reliance on cereals and other bought-in concentrates, apart from in the initial rearing phase. Out-wintering on fodder beet will also drive higher performance during the winter, allowing stock to be finished off grass comfortably at 20-21 months of age, therefore avoiding a second winter. By maintaining a rotational grazing system, grass quality will be maintained throughout the season allowing for consistent, above-average growth rates. The transition of the autumn-born calves through the system will be closely monitored.

### Calf rearing and pre turnout

Calves were conventionally reared on restricted milk and concentrates and were bought in with a mean age of 30.1 days. The Hereford-cross calves were by registered sires and bought in. Some of the Holstein-cross calves came from Harper's dairy unit, with additional sourced elsewhere. All calves were reared following the Dunbia rearing protocol, with access to straw and concentrates. They were weaned after five weeks and transitioned to big-bale silage and restricted concentrates, then turned out early March with a mean weight of 182kg.

### First summer grazing period



The calves were initially offered concentrate feed in the transition to a grass-only diet and were grazed on rotation to a target 50% utilisation for the first six weeks. This was then increased to a target utilisation of 80% with the aim of achieving daily liveweight gain (DLWG) of 1kg throughout the grazing season. The calves grazed a 10ha field split into 10 paddocks. A cut of silage was taken from 3.6ha on the 25 of May, yielding 72 x 500kg (approx) bales estimated at 40-45% dry matter (DM), equating to a yield of approximately 4.6t DM/ha. The performance to date can be seen in Table 1.

Table 1 Calf performance (to 25th October 2017)

Weight (kg)	Hereford x Hol/Friesian	Hol-Friesian
Liveweight at start (22/10/16) (kg)	61.6	60.8
Liveweight (20/01/17) (kg)	139	140
<b>DLWG (start to Jan) (kg/day)</b>	<b>0.87</b>	<b>0.97</b>
Liveweight at turnout (08/03/17) (kg)	181	183
<b>DLWG (Jan to March) (kg/day)</b>	<b>0.89</b>	<b>0.92</b>
Liveweight (03/04/17) (kg)	197	192
<b>DLWG (Mar to April) (kg/day)</b>	<b>0.62</b>	<b>0.36</b>
Liveweight (25/10/17) (kg)	382	365
<b>DLWG (April to Oct) (kg/day)</b>	<b>0.90</b>	<b>0.84</b>
<b>Overall DLWG (Jan to Oct) (kg/day)</b>	<b>0.87</b>	<b>0.81</b>

Very dry weather in June and July significantly affected grass growth, which was reflected in the modest DLWGs from 13 July to 11 August of 0.59-0.63kg. Decent rainfall in August boosted grass growth with DLWG back up to 1kg. The calves are on target to be 380kg when they move onto fodder beet.

### Grass growth and quality

Grass growth on the paddocks has been very good throughout the season, despite lack of rainfall in July causing a drop. The grazing platform has grown 12.2 tonnes DM of grass per hectare and provided enough silage for the cattle to be out-wintered on fodder beet.

Grass quality has also been maintained with the metabolisable energy (ME) peaking at 13.7 megajoules (MJ) per kg DM in May and maintained over 12 MJ of ME for the remainder of the season, with crude protein levels consistently above 18%.

### Out-wintering on fodder beet

Cattle are currently being transitioned for three weeks onto fodder beet to minimise digestive disorders. Cattle will strip graze the crop until the end of February 2018 and will have access to good-quality big-bale silage. Target DLWG will be above 0.7kg with an end of winter target of 480kg.

The dry matter yield of the crop has exceeded expectations at 27t of DM per ha. Target individual intakes are 2kg/DM of silage and 8kg/DM of fodder beet per day. To achieve this, cattle will eat approximately 200m<sup>2</sup> of crop per day and will have access to one bale of silage every other day.

AHDB Beef & Lamb is holding an event at Harper Adams on 20 December 2017 where you can find out more about the project. For more information, see the [AHDB Beef & Lamb website](http://ahdb.org.uk).