

# University Farm Beef Unit

2017/18



**Harper Adams  
University**

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The beef unit at Harper Adams University has historically been based on finishing Continental cross Holstein and Holstein bulls from the University's 400 cow dairy herd. Weaned suckled calves are also occasionally purchased for 'yard finishing' and approximately 150 cattle per year are finished. The cattle have typically been reared on intensive cereal beef systems to slaughter at 13-14 months old. This allows for very good integration with the University farm with the beef unit rearing calves from the dairy herd and using home grown cereals for feed, straw for bedding with the beef cattle supplying manure for the arable ground. The land around the campus is grade 2 quality and used for arable, vegetable and dairy production. Unfortunately beef production cannot usually generate the same level of income as these enterprises which restrict beef production to intensive systems with low land use or managed as a secondary enterprise. However we have been able to obtain grazing at our farm near Telford to enable us to change to a semi-intensive 18 month beef production system, and also land locally to evaluate a low cost outdoor high forage beef production system. Full details of this latter new system are given on page 11 in the Harper Adams Beef Unit Management Summary.

The last batch of British Blue x Holstein bulls reared on a barley beef system recorded overall daily live weight gains of 1.33kg from birth to slaughter (1.46kg from 12 weeks old to slaughter) at 13.3 months old weighing 584kg killing out at 56.5% to produce a 330kg carcass grading R-2+. The latest batch of Holstein bulls were reared through to slaughter at 13.3 months old weighing 572kg (288kg carcass wt).

The beef unit provides opportunities for trial work to be carried out with calves and finishing cattle on projects for commercial organizations and offers a resource for education and demonstration activities. Within the unit is a range of stock types so students can for example see at first hand the difference in performance and conformation between Holstein and Continental dairy bred cattle and suckler bred beef cattle. All of the cattle, including calves, are assigned to Honours Research Projects which are carried out by up to twelve final year degree students. The student takes responsibility under the guidance of University technicians for recording data such as liveweight, wither height, last rib girth measurement and feed intakes. Trials involving finishing cattle will involve collation of data from the abattoir (ABP Shrewsbury) on carcass grade, killing out percent and liver scores. The cattle are weighed every 30 days and are used for beef production tutorial practicals. The facility is also available for short course teaching with 'in-class' theory being demonstrated with 'hands-on' experience in the beef unit.

See the [2017/18 Harper Adams Beef Unit Management Summary](#) for further details.

Some of the recently completed calf and beef trials are shown below:

- Bulls versus steers.
- Evaluation of the replacement of barley with wheat with diets containing nutritionally improved straw (NIS) on the performance of intensively finished bulls (funded by Sundown Products Ltd).
- Evaluation of 125 and 160g/kg DM crude protein rations for maize silage fed 300kg continental cross dairy-bred finishing heifers.
- Evaluation of feeding elevated levels of milk replacer (600 v 900g) on the performance of artificially reared beef calves to 12 weeks (funded by Trouw Nutrition GB).
- Evaluation of diurnal feeding patterns of milk on the performance of artificially reared beef calves to 12 weeks (funded by Bonanza Calf Nutrition)

Trial reports from most of our calf and beef studies can be found on the [National Beef Association](#) website (go to Resources>Technical Information).

Trials currently in progress at Harper Adams are as follows:

- Evaluation of the replacement of concentrates with maize silage with 400kg continental dairy-bred finishing steers.
- Evaluation of the replacement of concentrates with maize silage with weaned suckler-bred steers.

- Evaluation of the performance of late maturing suckler bred steers sired by bulls with either high or low terminal indexes (EBVs).
- 'Calf to carcass on a low cost outdoor forage system' for October born Hereford x Friesian and Holstein-Friesian steers finishing at 21 months old (funded by AHDB, Dunbia and The Hereford Cattle Society).
- Evaluation of suckler bred progeny from Hereford bulls with either high or low Terminal Indexes (EBVs).
- Evaluation of a transitional milk replacer on the performance of artificially reared dairy-bred beef calves to 12 weeks (funded by Bonanza Calf Nutrition).
- Effect of feeding either hay or straw on the performance of artificially reared dairy-bred beef calves to 12 weeks (funded by Bonanza Calf Nutrition).

A study also commenced in October 2016 funded by AHDB, Dunbia and The Hereford Cattle Society to evaluate a 'low cost calf to carcass system' with 70 October born Hereford x Friesian and Holstein-Friesian steers reared on a forage based system with paddock grazing to maximise performance at grass and out-wintering on fodderbeet with the aim to slaughter the cattle off grass at 20-21 months old weighing over 625kg having been fed minimal quantities of concentrates.

In addition to the beef unit at the university campus, Harper Adams has a network of Beef Focus farms. These are top 1% performing commercial suckler herds whose physical and financial data are independently monitored by HAU Beef Cattle Specialist Simon Marsh. These farms are located both in the lowlands and uplands with a range of production systems and breeds within a maximum of 1½ hours from Shropshire which students can visit on organised trips.

These farms operate 'text book' herd management. Their systems include factors such as; compact calving, utilisation of hybrid vigour within the breeding programme; use of top 1-10% Index herd sires with focus on calving ease EBV's; selection of herd replacements using maternal EBV's; calving homebred replacements at 2 years old; maximising use of home grown feeds and fodder with appropriate body condition score management; creep feeding; focus on grassland management with clover rich pastures. These producers operate 'easy care' suckler systems within a low fixed cost structure. The beef industry needs to hear and see how farms recording top 1% performance is achieved and maintained and two of the farms (Simon Frost at Bakewell and Ian Willison in Nottingham) have recently been featured in a series of technical articles in the Farmers Weekly.