

Teagasc dairy calf to beef herbage allowance trial

Johnstown Castle 2015 – 2020

Project objective

The herbage allowance, or stocking rate, trial was established in 2015. Its primary objective is to evaluate the performance of dairy beef crossbred animals allocated three herbage allowances, governed by three stocking rate intensities; 2.65, 2.9 AND 3.15 LU/ha. Through this evaluation, the project will establish the optimum herbage allowance that aims to increase the carcass output while also investigating the environmental impacts of reducing the herbage allocation.

Sub-objectives

Alongside the primary objective, there are a number of sub objectives which include

- a) Carry out an economic appraisal of the production systems across various herbage allowances;
- b) Consider the influence of herbage allowance on meat eating quality;
- c) Investigate the environmental impact of reduced herbage allowance on beef farms;
- d) Determine the influence of strain of sire.

Project tasks

The project involves a number of tasks, which are undertaken both on farm, in factory and in the laboratory,

- Compare the performance of animals on different stocking densities.
- Evaluate the economic performance of the three stocking rate farmlets.
- Evaluate the genetic performance of animals across the farmlets.
- Determine the effect of dairy beef systems on colour, chemical composition and sensory characteristic of beef muscle.
- Optimise soil fertility and evaluate environmental sustainability of increased herbage allowance for dairy beef production systems.

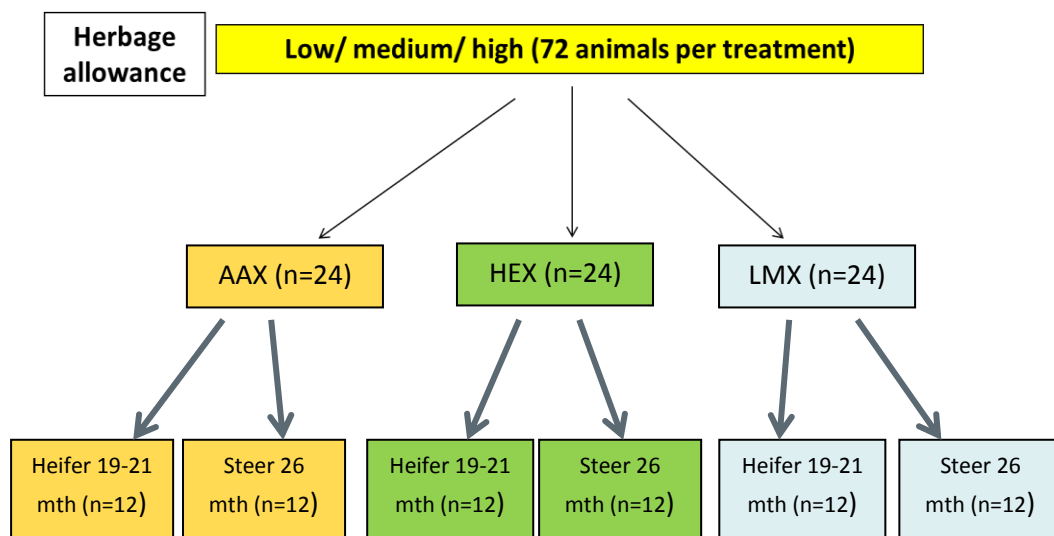
Trial Design

The herbage allowance trial is a full farm systems study, consisting of three herbage allowances run as three 'farmlets'; High, Medium and Low. The farm is divided into blocks, which are subdivided into the farmlets. This means that each farmlet is balanced for the varying topography and soil conditions that exist across the farm.



Each year, 216 spring born calves are purchased for the trial, 72 animals are assigned to each treatment group. There are 36 heifers and 36 steers in each group, balanced for breed (Angus, Hereford and Limousin), date of birth and weight on arrival. The calves are all AI bred, with the sires chosen for short gestation and ease of calving characteristics (PTA for calving difficulty of 4% or less with a minimum reliability of 50%).

For the 2015 born calves, the trial animals were assigned a slaughter date. All heifers were slaughtered off pasture at 19 and 21 months. 54 steers were slaughtered at 21 months and the final 54 steers were slaughtered at 26/27 months. For the 2016 to 2019 born calves, the animals are slaughtered to a fatness level (fat score of 3= minimum), determined by Body Condition Scoring. The heifers are drafted out in August of their second season and begin their finishing period, with an aim to be killed in November before their second housing. The steers are all rehoused, maintained over the second winter, turned out for a third season at grass in March and killed in June/July.



Grassland Management:

- Animals are rotationally grazed on a paddock system.
- To avoid confounding of live weight gains, each grazing group are allocated herbage of similar pre-grazing height and mass.
- Post-grazing sward surface heights will reflect the differences in herbage allowance; animals with the lower herbage allowance will graze to a lower post-grazing residual.
- Surplus herbage will be removed as baled silage.
- Grassland measurements (herbage mass determination, chemical analysis, pre and post-grazing heights and herbage utilisation) and grass budgeting will be carried out to aid management decisions.