

Animal Research Programme – Genetic Improvement of Dairy Cattle
RMIS Number : 5246

Title: Evaluation of Norwegian Red and Norwegian Red x Holstein-Friesian dairy cattle under Irish production circumstances.

Abstract

Interest is increasing in the potential use of alternative dairy breeds other than the Holstein-Friesian (HF) and/or crossbreeding. These interests arise from the reduced reproductive performance and survival of the modern HF dairy cow in Irish production circumstances. A recent study in the Republic of Ireland has reported pregnancy rate to first service to be 48%, considerably lower than the target of 60% for compact seasonal calving. There is growing evidence that crossbreeding can offer considerable merits in terms of fertility and survival. At present dairy farmers within Ireland are 'experimenting' with alternative breeds. However, they have no means of comparing the genetic level of the sires of these alternative breeds with the HF. The objective of this study is to provide estimates of key genetic parameters, that are needed before an Across-Breed evaluation can be put in place for the Irish dairy industry. The breed of choice is the Norwegian Red (NRF). Irish farmers will thus be able select from the top sires within the EBI across two breeds, and gain information on the potential advantages from crossing the two breeds (heterosis). This study will also provide considerable phenotypic and genetic information that will be of significant benefit to the newly initiated molecular genetics program at Teagasc Moorepark. In addition to phenotypic data, genetic information will also be generated on all the animals in the crossbreeding study through the Animal Biotechnology Programme, a joint venture between Moorepark DPRC and Moorepark Production Research Centre. The incorporation of molecular technologies into this crossbreeding study is a key issue. Molecular aspects of the crossbreeding study include (a) signature profiling where a collection of informative molecular markers are tracked through all animals and results allied to phenotypic data and (b) gene discovery of economically important traits via a candidate gene approach. This study will provide considerable phenotypic and genetic information that will be of significant benefit in the selection of superior animals for breeding which is very much part of Teagasc new vision for Agriculture Research. No costs (budget) have been included for any molecular analysis/research.

Project leader: Buckley, F
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Expected finish date: 31 December 2009