Acadamh Ríoga na hÉireann
Royal Irish Academy

Royal Irish Academy Grants Report

Title:	Dr
First Name:	Colin
Surname:	Byrne
Discipline:	Sciences
Year of Award:	2018
Project Title	The effect of pre and post natal nutrition on neuroendocrine regulation in cattle

1. Research background:

I completed a PhD in repro physiology in 2017, which examined the effects of plane of nutrition on age at puberty and subsequent fertility in dairy bulls. This involved characterization of the metabolic status of bulls and the response of reproductive hormones to differential planes of nutrition. I have also been involved in European wide studies, which aim to identify biomarkers of production, health and fertility traits in dairy cattle with the aim to develop predictors of the same traits from these biomarkers. More recently, I have been focusing on the effects plane of nutrition in early life of regulation of the hypothalamic pituitary gonadal axis in heifers and bulls and how this influences sexual development and age at puberty.

2. Please outline the findings of your research and/or milestones achieved (did you achieve the primary objectives - if not, what did you learn from the process)?

While a limited amount of work was carried out on the proposed project: The effect of pre and post natal nutrition on neuroendocrine regulation in cattle, I still met my central objectives of learning the necessary laboratory techniques for identifying the effects of plane of nutrition on neuroendocrine function in cattle. I also greatly improved my knowledge of the anatomy of the brain. This knowledge now allows me to carry out experiments in Ireland that will result in the generation of high quality data to answer central research questions on the effects of nutrition on neuroendocrine function and regulation of reproductive function.