

TITLE: AN ASSESSMENT OF THE MINERAL FEEDING PRACTICES ON CATTLE AND SHEEP FARMS IN IRELAND

Abstract: Mineral nutrition of farmed livestock is an important component in maintaining their health and productivity. However, it is important that both the quantity and balance of minerals offered closely reflects the animal's requirements, otherwise malnutrition may occur due to under or over supplementation. For example, too little Cu coming from the diet can result in loss of hair pigmentation, connective tissue disorders and low immune status. By contrast, too much copper in the diet can result in an accumulation of Cu in the liver to levels which are damaging to the animal system and in sheep can result in death. Kendal et al. (2015) reported that 35% of livers sampled at a UK abattoir contained over 8,000 μ mol Cu/ kg DM of liver, meaning that a 100g portion size would contain 3 times the Tolerable Upper Intake Level for Cu in humans. The Cu example demonstrates that it is important to get the mineral nutrition of livestock correct, both for the animal and for the consumer of animal products. This project purposes to examine the mineral feeding practices on Irish livestock farms, comparing these findings to both NRC and EFSA guidelines.

Breakdown of the project:

1. A survey of current mineral feeding practices at farm level. Dairy, Beef and sheep farms will be recruited through abattoir and dairy processor supplier databases for the purpose of the survey. This will allow the research to correlate mineral feeding practices to the mineral content of the meat and milk produced. A representative sample of these farms will be selected based on their system. For example; dairy vs. meat, organic vs. conventional and indoor vs. grass based diets.
2. An examination of mineral feeding technologies will also be conducted to determine the efficacy of these technologies in meeting the animal's requirements.

Predicted impact:

1. This project will contribute to the literature through publication in scientific journals e.g. Animal Science covering:
 - Current mineral feeding practices amongst livestock farmers in Ireland
 - The correlation between mineral feeding standards during the finishing period and the mineral concentration of selected animal products
 - The correlation between mineral feeding standards during lactation and the mineral concentration of milk
 - The effect of mineral feeding technology on mineral uptake in cattle
 - The mineral status of organic vs. conventionally finished cattle and sheep
2. Mineral use efficiency should improve at farm level, improving the overall sustainability of the animal production system.
3. Animal welfare may be improved through a reduction in production disease by more targeted mineral nutrition.

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