Introduction

The production of genetic and environmental interactions in (crossbred beef) cattle is a complex trait that involves a combination of genetic factors and environmental influences. In order to accurately model the genetic and environmental interactions, it is necessary to consider the following objectives:

1. To evaluate the importance of genetic x environmental interactions on the production of genetic and environmental interactions.
2. To include the importance of genotype and environmental interactions on the production of genetic and environmental interactions.

Objective

The objective of this study was to model genotype x environmental interactions (̄G × ̄E) to improve the accuracy of predictions. This was achieved by considering the following objectives:

1. To evaluate the importance of genetic x environmental interactions on the production of genetic and environmental interactions.
2. To include the importance of genotype and environmental interactions on the production of genetic and environmental interactions.

Results and discussion

The results showed a significant interaction between genetic and environmental factors. The model incorporating the interaction term (G × E) was found to be more accurate in predicting the performance of the animals. This was supported by the findings that the inclusion of the interaction term led to a decrease in the mean squares of the residuals.

Materials and methods

The study was conducted in a population of crosses between two breeds of cattle. The animals were evaluated for a range of traits, including weight at birth, weight at weaning, and growth rate. The data was analyzed using a mixed-model approach, which allowed for the estimation of both fixed and random effects. The model included both genetic and environmental covariates, as well as interaction terms between these factors. The results showed a significant interaction between genetic and environmental factors, which indicated the importance of considering both genetic and environmental factors in the modeling process.

Conclusions

The results of this study suggest that the inclusion of genetic and environmental interactions is necessary to accurately model the performance of cattle. The model incorporating the interaction term (G × E) was found to be more accurate in predicting the performance of the animals. This highlights the importance of considering both genetic and environmental factors in the modeling process. The results also suggest that further research is needed to understand the nature and magnitude of these interactions, in order to improve the accuracy of predictions.