

Heritability of Genetic Resistance to Bovine Respiratory Disease

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Introduction

The objective of this study is to better understand the genetic component to bovine respiratory disease (BRD). The focus of this study is to research the genetic link between cattle that are more susceptible and cattle that are more resistance to BRD. Data from Iowa State University's cattle at the McNay Research Farm and the Beef Teaching Farm, along with Iowa cattle producers, will be used to try to determine the best phenotypic measurement of resistance in cattle to ultimately help producers in selection of this economically relevant trait.

Materials and Methods

A further understanding of the genetics of resistance to BRD is anticipated by collecting health records and utilizing the parentage and breed makeup information on cattle from the McNay Farm. A list of parameters to be evaluated has been supplied, and this data is currently being recorded. This chosen list of the parameters includes symptoms, temperature, treatment procedures, responses to treatment, and carcass and growth data.

Another measurement that will be taken to identify cattle that show BRD resistance is collecting blood samples to test for a response in the blood titer level. This component of the study will evaluate blood samples both before and after vaccination. This measurement combined with the pedigree information of each calf will be used to determine if there is a genetic difference between cattle with varying

titer levels due to vaccination. If this relationship is shown, cattle producers may be able to improve herd health by selecting cattle that will respond more effectively to their vaccination protocol.

Another method to evaluate phenotypes of BRD-infected cattle is lung scoring at harvest time. Lung scoring will be used to identify all cattle that are affected by bovine respiratory disease, not just the cattle that show symptoms and are diagnosed with BRD. Again, cattle will be compared to their parentage records to see if genetics play a role in cattle that are both determined to be healthy and have no evidence of lung lesions. This will then be compared to the difference in average daily gain, carcass qualities, and many more traits of interest that affect profitability.

Significant of Research

The goal of researching this topic is to provide a more effective method to select for genetic resistance to bovine respiratory disease. BRD is the most common and costly health issue that the beef industry faces today. The economic advantage to controlling BRD is already obvious to cattle producers, and more important than ever before due to an increase in resistance to current treatments and prevention procedures.

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