

# **Evaluating Sire-Progeny Links, Breeding Plans and Information Management in Multi-Sire Breeding Scenarios on Commercial Herds**

## **Status Report, 2019**

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### **Introduction**

One of the more commonly used natural breeding systems in commercial herds is the multi-sire system. One of the major disadvantages to this system, however, is that producers are often unaware of which bulls are siring calves. The use of genetic technology to assign parentage may allow producers to determine which bulls have sired calves.

The assumption in these systems is that each bull is breeding an equal number of cows. However, without identifying which bulls are siring calves, it is impossible to know with certainty if this is the case. The introduction of desirable genetic traits in commercial herds is typically achieved through purchase of bulls. By linking bulls to their offspring, producers can better evaluate if they are achieving the desired outcomes of their breeding plans in multi-sire herds.

This multi-year project will demonstrate the benefits of a systematic approach to breeding and how sire-progeny and other herd performance information can be used to generate measurable productivity and profitability improvements.

### **Materials and Methods**

#### ***Collaborators***

In total, seven herds are evaluating the use of the Q-link bull performance and herd improvement tool from Quantum Genetix. This technology is able to link sires to their offspring through genetic testing.

WCFA is responsible for coordinating with five local herds, with the other two herds

associated with Olds College and Lakeland College. Information provided in this report refers specifically to the five herds associated with WCFA. Data analysis will be for all seven participating herds. BIXs has partnered on the project to provide data storage and compilation services.

## **Data Collection**

### ***DNA Sample Collection***

In total 32 bulls and 343 calves were sampled for DNA analysis in the first year of the project (note: one producer sampled bulls but did not sample any calves). Each rancher was asked to provide a minimum of 100 calves, if possible, for DNA testing.

All sires were sampled using the Quantum Genetix Hair Collection Procedure. Approximately 20 tail hairs with follicle attached were obtained from each bull, sealed in an envelope and sent to the lab for analysis.

Calves were sampled using a tissue applicator and the Quantum Genetix Ear Tissue Collection Procedure. Samples were collected during other management activities, such as branding or weaning. Tissue samples were kept frozen until delivery to the lab for analysis.



*Figure 1. Tissue sampling supplies: tissue collection tool (blue), tissue collection tags, punches for tissue collection (orange). The cooler contains samples ready to be shipped to the lab.*

### ***Breeding Soundness Evaluation***

Prior to the breeding season a breeding soundness exam was conducted by a licensed veterinarian on all sires participating in the test groups. All bulls were required to pass the evaluation and test negative for venereal diseases in order to be enrolled in the project.

### ***Production Data***

Additional data was collected from each participating ranch to support economic analysis and data interpretation. Individual weaning weights for all calves that were DNA tested were collected for some herds. Individual weights for dams and body condition scores at time of weaning were collected for some herds. It was discovered that some of the participating ranches were unable to provide us with this information due to limitations within their handling systems. Ranchers were also asked to provide information regarding calving ease, losses, abortions, length of calving and breeding seasons, etc. Expected Progeny Differences (EPDs) were submitted for all bulls in the test groups.

### ***Results and Discussion***

As this was the first year of the project, the primary focus was on familiarizing participants with data collection procedures and record keeping expectations. Due to some equipment issues at the lab, there were significant delays in receiving the parentage results. A statistical analysis will be performed on the data for all seven herds, collectively, once all the data has been compiled. A contractor has been brought on to do some production and economic analysis of results. Reports on results will be made available as they are completed. Data collection for this project is expected to continue into 2022.