**The effects of feeding reduced-lignin alfalfa on growing beef cattle performance**

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**Introduction**

Increasing cattle gains with decreased inputs is a concern of cattle producers throughout the U.S. A new trait in alfalfa production has been found to decrease the total amount of lignin expression in alfalfa plants. Reduced lignin results in higher digestibility of the fibrous portion of the plant.

In dairy cattle, this has had a direct correlation to increased milk production and 4% fat corrected milk; however, no studies have looked at how this decrease in lignin and increase in forage digestibility can impact beef cattle production. The goal of this study is to quantify an effect of reduced lignin and increased fiber digestibility on growing cattle dry matter intake, average daily gain and feed efficiency. Based on results derived from dairy cattle research, we hypothesize feeding reduced-lignin alfalfa will result in a concurrent increase in the amount of gain of cattle carcasses.

**Materials and Methods**

A total of 24 weaned Angus crossbred heifers will be enrolled in this research study. **Twelve heifers** will be fed the conventional alfalfa harvested (10% bloom) at 2.5% body weight, on a dry matter basis. Another **twelve heifers** will be fed the reduced-lignin alfalfa (10% bloom) at 2.5% body weight. Heifers will be weighed immediately prior to the start of the trial, as well as every 28 days thereafter.

There will be a seven day acclimation period, where animals will be fed their respective treatments but no data will be recorded. Sampling will begin on day 0, with forage quality samples taken from both treatments, and animal body weights recorded. Sampling will occur on days **0, 28, 56, and 84**. Hay will be fed individually, using GrowSafe feeders. Forage quality samples will be taken on each sampling date and will be analyzed for nutrient analysis. Additionally, samples will be sent to the University of Wisconsin for TTNDFD analysis. *In situ* digestibility will be estimated using four university-owned cannulated heifers. 6-, 12-, 24-, 30-, 48-, 96-, and 240- hour fermentation values will be recorded in order to obtain neutral detergent fiber digestibility (NDFD).

Attached is the excel spreadsheet for the reduced-lignin study. The labels go as follows:

**ID= cow tag number**: each cow has a unique tag number

**PEN= pen**: there are 8 pens total, with 3 cows per pen

**PD= period**: there are 4 periods total. We took weights for the cows at period 1 (the first day of the trial), period 2 (28 days from beginning of trial), period 3 (56 days from beginning of trial), and period 4 (84 days from beginning of trial)

**TX= treatment**: reduced-lignin OR conventional alfalfa

**AVGWT= average weight**: weight of each cow for each period

**ADG= average daily gain**: average daily weight gain per cow

**INTAKE**= how much each cow was capable of eating (this data will be coming soon)