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Research newspaper article

“Effects of Utilizing cotton byproducts in a finishing diet on beef cattle performance, carcass traits, fecal characteristics, and plasma metabolites.”

I interview Research Coordinator Colten Robison about work involving by product experiments in feeding cattle. Currently today there is an increase in the production of cotton in the Midwest. “As cattle producers and feeders are always looking to get an edge on cost of feeds and feedstuffs, there has been increasing interest in using different by-product feeds as sources of finishing cattle rations” stated Research Coordinator Colten Robison of the OSU Willard Sparks Beef Research Unit. The search has led cattle feeders to investigate using cotton seed and cotton byproducts known as gin trash as sources of roughage in a finishing-based diet. “Finishing rations are composed of a high levels of concentrate grains that allow cattle to gain well but must also include a small amount of roughage to promote rumen cellulose degradation, therefore the use of by product roughage is enticing to producers” stated Colten. “That roughage source is often a hay type forage”. Research conducted under Dr. Blake Wilson of OSU and headed by Research Coordinator Colton Robison have yielded a full 6-month research project identifying the results of cotton gin trash and cottonseed replacements in finishing diets. The project involved sixty-four cross bred angus steers that were transferred from the University of Arkansas Livestock and Forestry Research Center to the OSU Willard Sparks Beef Research unit.

 Once they arrived, they were separated into two groups based on relative size with a small and large group of animals. Then each subsequent group were equally divided into a control and experimental group lending to four groups in total: two control and two experimental differentiated by animal size. The trials transitioned to the finisher diet over a period of twenty-two days (Warner, A et al. 2021). Diet samples were collected twice per week and dry matter was subsequently evaluated. The cattle were individually weighed and recorded upon receiving, and at days 14, 28, 56, 84, and 112 during the experimental phase. Fecal samples of all animals were also recorded upon each of the weigh days where the ruminal pH of the microbes could be observed and monitored during the trial. Common animal feedings of ruminants require selecting for propionic amino acid producing ruminant microbes via a high cellulose or grain-based diet, as propionic amino acids result in the most efficient usage of the animal in terms of gaining carcass weight. This is essential in producing pounds of beef for which animals are bred and raised for. Blood samples were also collected for glucose, lactate, and nitrogen plasma evaluation.

Once the experimental phase ended, all sixty-four steers were euthanized, and the carcasses were evaluated. The results of the experiment showed that substitution of cotton and gin trash in diets for prairie hay allowed for a better average daily gain ration compared to the controls, with a 14kg heavier carcass that present on the control groups (Warner, A et al. 2021). Plasma metabolites of the experimental group showed an overall decrease to the control group. This experiment suggests that cottonseed by products can be effectively used in a finishing ration for feedlot cattle with the benefits of an increase in performance of said cattle when compared to normal feedlot rations utilizing a more expensive bermudagrass hay.

Warner, A., Beck, P., Foote, A., Pierce, K., Robison, C., Hubbell, D., & Wilson, B. (2020, February 04). Effects of utilizing cotton byproducts in a finishing diet on beef cattle performance, carcass traits, fecal characteristics, and plasma metabolites. Retrieved April 02, 2021, from https://academic.oup.com/jas/article/98/2/skaa038/5721964