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Progress Report: Effects of Condensed Corn Distillers Solubles on Steer Performance and Carcass Composition

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Abstract
This study looked at the use of condensed corn distillers solubles (CCDS) as a feed source for steers backgrounded on pasture as well as steers being fed in the feedlot. In addition, a treatment group was finished on pasture with CCDS as a part of their ration. The two feedlot rations were isocaloric and isonitrogenous. The pasture finishing steers were fed a ration based on the feedlot ration containing CCDS but were not fed any hay. The goal of this study was to establish the benefits, as well as the limitations, of feeding CCDS to feedlot and backgrounded steers.

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Introduction

This study looked at the use of condensed corn distillers solubles (CCDS) as a feed source for steers backgrounded on pasture as well as steers being fed in the feedlot. In addition, a treatment group was finished on pasture with CCDS as a part of their ration. The two feedlot rations were isocaloric and isonitrogenous. The pasture finishing steers were fed a ration based on the feedlot ration containing CCDS but were not fed any hay. The goal of this study was to establish the benefits, as well as the limitations, of feeding CCDS to feedlot and backgrounded steers.

Materials and Methods

Feeder calves from Midwest sale barns of Angus and Angus crossbred genetics, were purchased for this study. The steers were fed at the Iowa State University Western Research Farm, Castana, IA. The feedlot flooring is solid cement and the feedlot offers shelter protection from northern exposure. Pasture conditions consist of two-acre paddocks with rotational grazing. All pastures are fertilized twice annually and consist of predominantly smooth brome grass. In the first year of the study, 112 steers were sorted by color, weight, and purchasing location. They were randomly allotted into four treatment groups with 28 steers in each group and seven steers per pen. The second year of the study, a fifth treatment group was added. This treatment became part of the allotment process established during the first trial. The average beginning steer weight was 593 lb and 598 lb, respectively; the average ending weight for both years was 1,298 lb and 1,305 lb, respectively. All steers were implanted with Compudose and injected with Ivomec at the beginning of each trial, and reimplanted with Revalor approximately 100 days prior to harvest. Assigned treatments for the first and second trials consisted of four and five treatments, respectively. The cattle in the feedlot treatment (F) received whole shelled corn, alfalfa hay, molasses, and a protein, vitamin, mineral, and Rumensin pelleted supplement. The cattle in the feedlot and CCDS treatment (F+CCDS) received a diet of whole shelled corn, alfalfa hay, CCDS, and a protein, vitamin, mineral, and Rumensin pelleted supplement, with the CCDS providing 25% of the ration on an as-fed basis. The third and fourth groups of cattle were placed on rotated brome grass pastures with the cattle in the third treatment (P) receiving a vitamin, mineral, and Rumensin supplement in block form. The cattle in the fourth treatment (P+CCDS) received CCDS free choice in a lick tank along with a vitamin, mineral, and Rumensin supplement. The pasture backgrounded steers were on rotational cool-season pastures from May 15 until September 5 and May 31 until October 23, respectively, because pasture growth was unable to meet steer needs and pastures started to become dormant. When steers were brought into the feedlot from pasture, the P treatment was provided the same diet as F and the P+CCDS received the same diet as F+CCDS. Daily feed intake for P and P+CCDS treatments was calculated only for the drylot feeding period and, thus, feed-to-gain (F:G) calculations for P and P+CCDS represents

only the drylot feeding phase. In the second trial a fifth treatment was added to the study. This treatment of cattle was fed a diet similar to the cattle in the F+CCDS treatment, but instead of chopped hay, pasture served as their roughage source (PF). They remained on pasture for the duration of the study. The grass consumption of this treatment was estimated using the 2007 BRaNDS program. At the time grain was introduced to the different treatment groups, all treatments were brought up on feed gradually. Dry matter (DM) percentages were calculated weekly on the whole shelled corn and alfalfa hay. Dry mattter percentages for the CCDS were reported as monthly averages from Galva Holstein Ag, the source of the CCDS. The pelleted supplement was assumed to be 91.3% DM and the DM of molasses was assumed to be 74.3% DM based on the 1996 NRC. Comparisons between treatment groups consist of average daily gain (ADG), F:G, quality grade (QG), yield grade (YG), and economic evaluations.

Results and Discussion

In the first trial F+CCDS steers exhibited slight advantages in ADG, F:G, and QG, compared with all other treatments. Steers in the F treatment showed advantages over P and P+CCDS groups in ADG and F:G. When comparing the P+CCDS and P treatments, the P+CCDS had higher ADG but poorer F:G. The YG across all treatments were similar and averaged YG 2.

In the second trial, the F+CCDS and F treatment groups exhibited the greatest ADG. In addition, the F+CCDS group was comparable in F:G compared with the P treatment, both of which had an advantage over other treatment groups. The P+CCDS treatment group exhibited the poorest ADG, but was comparable to the F treatment in F:G. All treatments showed an advantage in F:G over the PF treatment. The F+CCDS, P, and P+CCDS treatment groups were all comparable in QG, averaging low Choice, and exceeded the F and PF treatments, which were Select plus and average Select, respectively. The YG across all treatments were similar and averaged YG 2.

These are the results of the first two of three trials.

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