Management Factors Influencing the Feeding of Young Bulls for Market-Ready Beef

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Introduction
Feed is a major part of the total cost in raising cattle from weaning to market-ready weights. Young bulls convert energy and protein from feeds to lean beef more efficiently than steers. Most consumers would prefer beef with less fat outside the muscle of retail cuts. Carcasses from bulls killed at about 17 months of age and weighing 1,300 to 1,450 pounds have less backfat, less kidney, pelvic, and heart fat, and yield more weight of closely trimmed retail product than carcasses of similarly managed steers. However, at this age carcasses of bulls also have less fat within the muscle and may be less tender. Production of beef from young bulls is a common practice in Europe. However, it remains a largely unused system in the United States. Aggressive and homosexual behaviors of bulls may explain part of the reluctance by U.S. feedlot operators toward feeding bull calves. In these studies we investigated factors under managerial control that might reduce undesirable behavior of young bulls and improve their performance.

Procedure
We conducted three experiments feeding 12 to 14 mo old bulls to marketweight. The feeding period lasted either 56 or 112 days. Factors evaluated were: group size (30-34 vs 60-68 head/pen), mixing bulls from different pens, and tranquilizing bulls before mixing them. Rations contained 1.2 to 1.3 Mcal of metabolizable energy per lb and 12 to 13% crude protein. Each pen of bulls was transported to a packing plant as a group and killed immediately after arrival. Carcass data were recorded 24 hr after slaughter.

Results
Bulls penned in smaller groups grew about 17% faster (2.7 vs 2.3 lb/day) than bulls penned in larger groups. However, feed consumed per day did not differ by group size. Bulls penned in smaller groups also had 17% more backfat (.38 vs .33 in) than their counterparts penned in larger groups. Based on these results, the optimal number of bulls per pen is less than 60. However, finding that optimum requires further research.

Tranquilizing bulls before mixing them reduced butting and riding immediately after that. However, as the tranquilizer wore off butting and riding increased. Over a 3 day period after mixing the bulls, no differences existed between tranquilized and nontranquilized groups in numbers of head butts or mounts. Tranquilized and nontranquilized bulls were similar in all performance and carcass characteristics measured.

Bulls reared from weaning with the same pen-mates can establish a "pecking order" at younger ages and less violently than bulls mixed at 1 yr of age. In comparison with bulls mixed at 1 yr of age, keeping pens intact from weaning had no effect on their growth, feed intake, or carcass attributes. We speculate that the few days needed to establish a "pecking order" in relation to the length of the feeding period offset this treatment effect.

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