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Cattle Feeding Strategies to Cope with High-Priced Corn

*by Carl P. Birkelo, associate professor,
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Record-high corn prices and tight supplies have cattle feeders searching for alternatives to the typical high-corn finishing diets used to get cattle ready for market. Most have looked to other high-energy feeds such as by products to fill the gap. However, these have also increased in price along with corn and, in most cases, offer little savings.

Hay prices, on the other hand, have not risen greatly in some areas. This has changed the relationship between grain level in the finishing diet and time-related expenses (yardage and interest) on cost of gain. Figure 1 illustrates this relationship and how it has changed from previous years. A computerized linear optimization model was used to determine the optimum corn-hay levels and the changes in cost of gain as these levels deviate from the optimum.

In the analysis, corn was priced at \$4.50/bushel and alfalfa hay at \$50/ton. The solutions were not very sensitive to interest rate. As a result, interest, which covered cattle purchase cost, all feed, and yardage, was fixed at 10%. Yardage was included at \$0, \$.10, \$.20 and \$.30/head/clay. An additional run of the model was made with corn priced at \$2.50/bushel and alfalfa hay at \$50/ton to reflect conditions of previous years. Yardage and interest were \$0 and 10%, respectively.

The bottom line in the figure illustrates how cost of gain declines continuously as corn content of the diet increases when corn costs \$2.50. In this case, corn is the cheaper

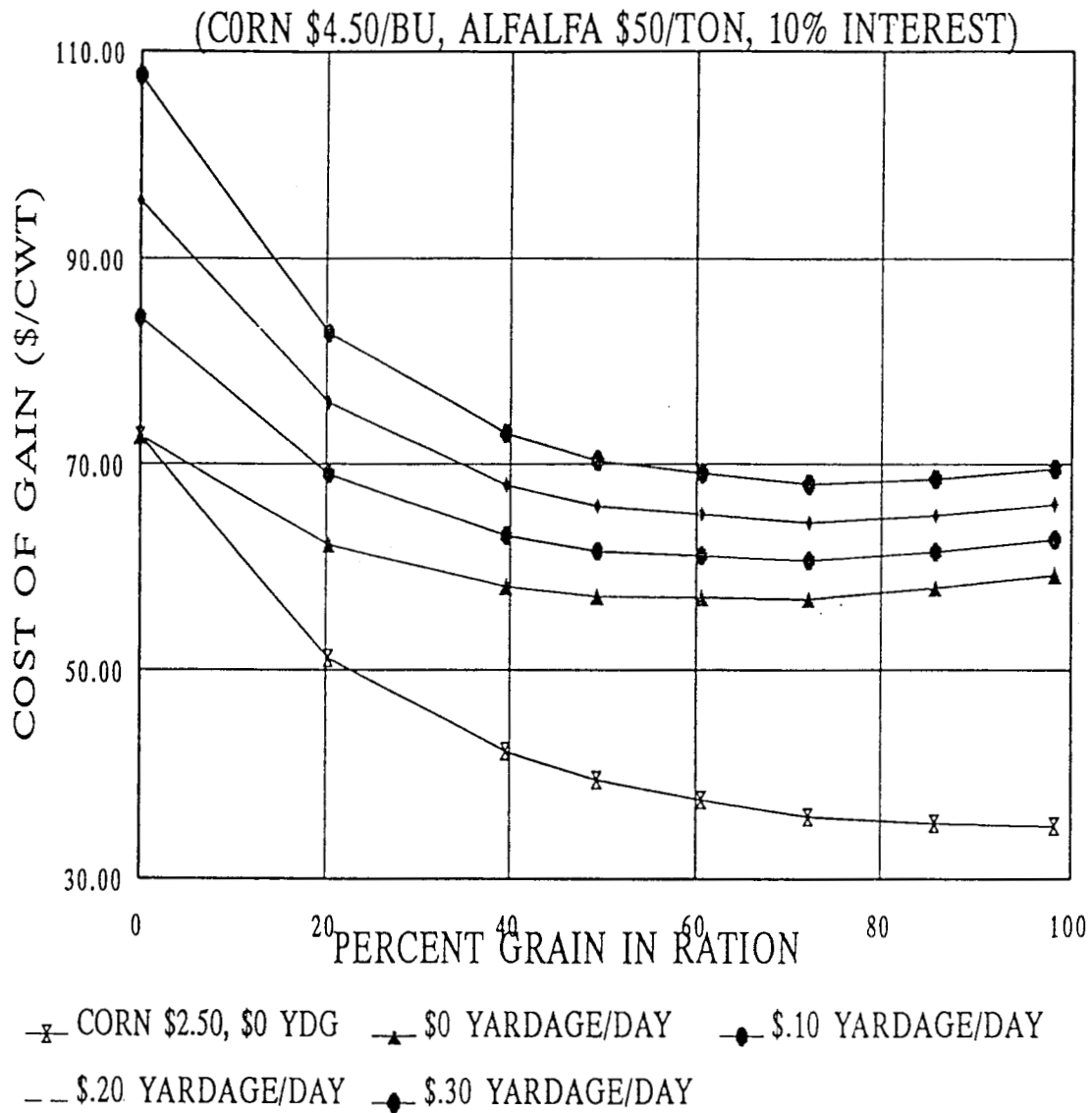
source of energy. This, coupled with the lower costs of interest and yardage at high rates of gain and fewer days on feed, has provided a strong stimulus in the past for maximum feeding of corn.

However, with corn at \$4.50/bushel, the curve shifts to the left. In other words, the improvement in cost of gain bottoms out before reaching a 100% corn diet. The optimum actually lies between 71 and 77% corn. Cost of gain increases as corn content changes in either direction from the optimum; to the left because of increased yardage, interest and animal maintenance requirements; or to the right because of higher priced feed. Increasing yardage cost accentuates the relationship.

Just as important as the optimum level is the rate of change in cost of gain as corn levels move away from the optimum. Regardless of yardage costs, corn levels in this scenario can be adjusted up or down at least 10 percentage units from the optimum with only a \$1/cwt. increase. The optimums are fairly constant down to a corn price of about \$3.20/bushel or, alternatively, up to about \$70/ton for alfalfa hay. Changing both prices simultaneously can change the optimum substantially depending on the combination.

Optimum corn levels in finishing diets have changed for cattle feeders with access to reasonably priced hay. Higher hay levels may be in order to minimize total cost of gain. At the very least, there is considerable flexibility in this case to stretch limited corn supplies.

Figure 1. Effect of grain-feeding level on cost of gain.



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