

## High Oil Corn for Feedlot Cattle

Advances in plant breeding have led to the development of new varieties of corn with unique characteristics. Increasing the oil content of corn should improve its nutritional value because fats and oils contain twice the number of calories per unit of weight than carbohydrates. High oil corn varieties that contain 3-4% more oil than normal corn have been developed that are competitive from a grain yield standpoint. Considerable interest has been expressed by corn growers and livestock producers relative to the potential of high oil corn as a feedstuff. Research in swine and poultry have demonstrated improved feeding values in high oil vs. normal corn. Fewer studies have been conducted in cattle.

A series of studies on the effects of high oil corn on performance and carcass characteristics are in the process of being conducted at Iowa State University. The first of these studies has been completed (Trenkle and Belknap, 1999) and is discussed in the following section.

Ninety head of 950 lb. Steers were allotted to three treatments (5 pens/treatment). The treatments were Optimum® high oil corn, isogenetic control corn, and control corn with added fat. Since the high oil corn contained more protein, a higher level of soybean meal was added to the control ration. The steers were fed Rumensin® and implanted with Component® TE-S. For the first 56 days on feed control steers gained faster and were more efficient than the high oil corn steers. The high oil corn fed steers compensated the second 50 days and over the 107 day trial there were no differences in average daily gain or feed efficiency. The daily gains were 3.92, 3.88 and 4.03 lb. Per day for control, control + fat and high-oil treatments. Feed efficiencies were 6.43, 6.47 and 6.38 for the same treatments. It is speculated that the higher early gains by the control cattle were a response to the higher soybean meal level. Previous ISU research has shown short term responses to higher soybean meal levels in aggressively implanted, fast growing cattle (all three treatments gained over 5 lb. Per day for the first 57 days). Relative to carcass traits, steers fed high oil corn or normal corn + fat had a higher percentage USDA Choice than control steers. This result is consistent with

previous research at the University of Idaho. Economic analysis of this study suggests that the high oil corn has a higher value than normal corn ranging from \$.05 to \$.25/bu., depending on the premium received for Choice vs. Select carcasses. The University of Idaho study, as well as commercial feedlot data with steam-flaked corn has shown higher value differences. The average increase in energy value for high-oil corn compared to normal corn in 4 studies (Iowa, Idaho and two in Colorado) was 6% (Owens and Soderlund, 1998). This compares to a difference of 8% which would be calculated based on the nutrient composition differences.

Several questions remain to be answered concerning high oil corn for feedlot cattle. These include:

1. What is the optimum protein supplementation, particularly early in the feeding period?
2. How should high oil corn be processed?
3. Is a blend of high oil and normal corn beneficial?

Research is ongoing to attempt to answer these and other questions.

### **References**

Trenkle, Allen and Craig Belknap. 1999. Effect of Optimum® High Oil Corn on Performance and Carcass Characteristics of Finishing Yearling Steers. Iowa State University Beef Research Report (in press)

Owens, Fred and Steve Soderlund. 1998. Value added grains for today and tomorrow. Presented at the Iowa Cattle Feeders Conference, Nov. 17, 1998, West Des Moines, Iowa

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