

## **Project Summary**

### **Effects of Delayed Steroid Implanting on Feeder Cattle Health, Performance and Carcass Quality**

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### **Background**

Bovine Respiratory Disease (BRD) is the most costly disease in the beef industry (NAHMS, 2000; Snowden et al., 2006). This syndrome is very common but is difficult to diagnose and subsequently many cattle go untreated (Thompson et al., 2006). The negative impacts of BRD have been shown to cause a decrease in finish weights in affected cattle (53 lbs. for severe cases; Thomson et al., 2003) and decreased quality grades compared to healthy cattle (Gardner et al., 1999). Delaying the time of initial steroid implant has been shown to not have a negative impact on feeder performance (Mader, 1994) and actually has been seen to improve carcass quality in yearling steers (Bruns et al., 2005). Cattle suffering from Infectious Bovine Rhinotracheitis (IBR) have a decrease in protein synthesis and an increase in protein degradation (Boyles et al., 1989). There is a real risk of losing performance and carcass weight by not implanting calves or yearlings upon arrival. There also is potential value in not adding unnecessary stress which leads to disease and decreased carcass weights and quality. This study was designed to answer the questions that feedlot managers, packing plant operators, nutritionists and veterinarians are currently asking about the effects of delaying the timing of the initial steroid implant on the health, performance and carcass characteristics of feeder calves.

### **Methodology**

This study was completed at a commercial feedyard in central Kansas. There were 1,600 head of high-risk calves (590 lbs) shipped to a commercial feedyard to be utilized in the study. Calves were allowed to rest overnight prior to processing. At processing, calves were randomized to either receive an initial implant (Revalor XS; 40 mg estradiol 17 $\beta$  + 200 mg trenbolone acetate) on day 1 or receive the same initial implant on day 45 post-processing (~100 head per pen with 10 reps per treatment for a total of 20 pens). Cattle were randomly assigned to treatment by alternately assigning five animals to one treatment and the next five animals to the other treatment as the animals were moved through the processing barn. This process was repeated until all the cattle for designated treatment pens were processed. Cattle were shipped to a commercial abattoir for harvest and carcass data collection.

Cattle were individually weighed on day 0 and day 45 and their final weight was estimated by dividing the hot carcass weight by a pen average dressing percentage. A pen weight of the cattle was also taken before cattle were shipped to harvest. All cattle were observed daily by trained feedyard personnel for disease or injury. Cattle were shipped by replicate to a commercial harvest facility. Trained personnel recorded hot carcass weights, marbling scores and yield grade for all cattle. Also, trained personnel recorded lung lesions, liver abscess lesions and thoracic peel out lesions at the time of harvest.

### **Findings**

Cattle performance and subsequent carcass characteristics were not affected by delaying the initial implant by 45 days on feed. There was a tendency for cattle with delayed implanting to have lighter carcass weights ( $P = .20$ ), lower yield grades ( $P = .16$ ) and improved carcass value per pound ( $P = .09$ ). Delaying steroid implants administration resulted in minimal differences in health parameters.

Delaying steroid implant administration had no effects on peel out rates, lung lesions or liver abscess rates in feeder cattle. Over 50% of all cattle enrolled in the study had lung lesions at slaughter, which indicates that these cattle were quite challenged with BRD during the study. Peel out rates have not been documented in the literature. The cattle in this study averaged 20 to 21% peel out rates, which seems like a high prevalence.

### **Implications**

In conclusion, these data indicate there is no difference in performance, health or other parameters in cattle regardless of whether their steroid implant is given at arrival or delayed 45 days on feed.

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