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PERFORMANCE OF COWS IN THE LACTATION FOLLOWING rbST TREATMENT

J. R. Dunham

Summary

The first 305-2 $\times$ -ME lactation record (after 45 days in milk) projected by the DHI program in 28 cows was not different from their first projected lactation record in a previous lactation in which recombinant bovine somatotropin (rbST) injections were begun by the 90th day of lactation. These results suggest when rbST-treated cows are fed and managed properly during lactation and the dry period, no negative effect of rbST or so-called "burn out" occurs.

(Key Words: Recombinant Bovine Somatotropin, Burn Out, Sophomore Slump.)

Introduction

Recombinant bovine somatotropin (rbST)-treated cows usually produce daily from 8 to 15 more lb of milk than non-rbST-treated cows. Two concerns often are expressed by dairy farmers when the topic of rbST is discussed. The first concern is that rbST-treated cows will not produce as well in the next lactation when rbST is not used. Does the stress of producing the additional milk when treated with rbST result in less milk production in the subsequent lactation? A second concern is that second-lactation milk yields will be affected adversely when first-lactation cows are treated with rbST. This phenomenon often is referred to as "burn out" or "sophomore slump". The objective of this study was to compare milk production of cows in one lactation with rbST treatment and in the next lactation when rbST was not injected.

Procedures

The first 305-2 $\times$ -ME lactation records projected by the DHI program in 28 cows (14 in first lactation and 14 in second and third lactation), which were included in a rbST experiment (The Upjohn Co.) during 1991, were compared with their first projected 305-2 $\times$ -ME records in the next lactation in which rbST was not used.

The first injection of rbST was given on the 90th day of lactation, and the last injection was given 7 days before dry off. Cows were dried off to allow for a 60-day dry period. During the dry period, prairie hay and 9 lb of a grain mix balanced for energy, protein, vitamins, and minerals were fed daily. This program was designed to obtain a body condition score of 3.5 to 4.0 during the dry period.

The first projected 305-2 $\times$ -ME records were compared between the two lactations because the first projection is made by the DHI program at the first test after 45 days in milk. Therefore, the first 305-2 $\times$ -ME record during the experimental lactation was made before injections of rbST began.

Results and Discussion

Average projected 305-2 $\times$ -ME records of cows used in the rbST experiment during 1991 and their subsequent record in 1992, when rbST was not used, are shown in Table 1. The average 305-2 $\times$ -ME record in all cows during the rbST lactation was 104 lb of milk greater than the average for the next untreated lactation. The difference was only 28 lb greater when the lactation record was converted to fat-corrected milk (FCM). The differences were not significant.

Comparing the average 305-2×-ME records for first and second lactations showed that the second lactation was greater by 279 lb of milk or 408 lb of FCM. These differences also were not significant.

Apparently, cows treated with rbST can be fed and managed properly during lactation and

the dry period to overcome any possible negative effects of increased milk production in response to treatment with rbST. These data also suggest that first-lactation cows do not experience "burn out" during the first lactation or exhibit the so-called "sophomore slump" when fed and managed adequately during their first lactation and dry period.

Table 1. Comparison of First Projected Lactation Records of Cows Used in an rbST Experiment with Their Records in the Next Lactation

Cows	First projected 305-2×-ME		Fat-corrected milk (FCM)
	Milk	Fat	
All 28 cows (1991) ¹	20,014	713	18,695
All 28 cows (1992) ²	19,910	714	18,667
14 cows in first lactation (1991) ¹	20,206	720	18,887
14 cows in second lactation (1992) ²	20,485	740	19,295

¹Projected DHI lactation record (305-2×-ME) after 45 days in milk before cows were injected with rbST during the remaining lactation beginning on the 90th day in milk.

²Projected DHI lactation record (305-2×-ME) after 45 days in milk in a subsequent lactation in which cows were not injected with rbST.