

Impact of Salmate Feeding on Changes in Reproductive Status in a Dairy Herd

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Salmate, an omega 3 fish oil product, was incorporated into a feed supplement used to feed the lactating herd of Bernard Holsteins located in Orinda TN. The supplement containing Salmate provided additional energy feeds (bypass fat, citrus and hominy), rumen undegradable protein, minerals, vitamins buffer, monensin and other non nutritive feed additives. The supplement was fed as part of a total mixed ration (TMR) that provided approximately 50 grams of Salmate per cow per day. The TMR was fed twice daily beginning in mid-November 2010. Reproductive performance was monitored using DHIA records. All cows were bred using artificial insemination by Danny and Joel Bernard.

The reproductive status of the herd was determined on all cows in the herd on November 1, 2010 to establish a baseline for comparison to performance for two years of feeding Salmate. Efficacy of Salmate was determined by summarizing the reproductive status of the herd at four time points after the start of Salmate feeding: 6 months, 12, months, 18 months and 24 months.

Results are presented in Table 1 and in 4 diagrams for the baseline and all times except 24 months are discussed in this report.

The herd profile on November 1, 2010 is in Figure 1. There were 156 cows in the herd of which 139 were milking and 17 were in the dry period. The milking cows averaged 208 days in milk. The dry cows averaged 392 days open in the prior lactation (Table 1). Fifty three (53) milking cows, 53 were confirmed pregnant with 26 becoming pregnant on the first insemination. Pregnant cows (lactating and dry) represented 44.9% of the herd. Thirty nine (39) cows had been bred but were not confirmed pregnant by the veterinarian. Forty seven (47) cows had not been bred but only 9 (5.8% of all cows) were greater than 100 days in milk. The herd as a rule had a voluntary wait period (VWP) of 60 days in milk and on this date 38 cows were within the VWP. Considering inseminations to all cows, the herd required 3.4 services for each of the 70 pregnancies.

The herd profile on May 26, 2011 is in Figure 2. There were 174 cows in the herd of which 148 were milking and 26 were in the dry period. Milking cows averaged 186 days in milk. Of the cows in the dry period, 12 were pregnant prior to start of Salmate feeding and 14 became pregnant after start of Salmate feeding, The dry cows averaged 259 days open in the prior lactation (Table 1).

Eighty two (82) milking cows were confirmed pregnant with 44 becoming pregnant on the first insemination. Pregnant cows (lactating and dry) represented 64.9% of the herd. Thirty four (34) cows had been bred but were not confirmed pregnant by the veterinarian. Thirty two (32) cows had not been bred with only 6 (3.4% of all cows) greater than 100 days in milk. Fifteen cows were less than 60 days in milk. Considering inseminations to all cows, the herd required 2.98 services for each of the 108 pregnancies.

The herd profile on November 11, 2011 is in Figure 3. There were 186 cows in the herd of which 148 were milking and 38 were in the dry period. Milking cows averaged 155 days in milk. The 38 dry cows required 105 inseminations to become pregnant. Dry cows averaged 187 days open in the prior lactation (Table 1).

Twenty eight (28) milking cows were confirmed pregnant with 14 becoming pregnant on the first insemination. Pregnant cows (lactating and dry) represented 35.5% of the herd. Fifty (50) cows had been bred but were not confirmed pregnant by the veterinarian. Seventy (70) cows had not been bred with 9 (4.8% of all cows) greater than 100 days in milk. Forty seven cows or 25.3% of all cows were less than 60 days in milk. Considering inseminations for all cows, the herd required 3.47 services for each of the 66 pregnancies.

The herd profile on May 21, 2012 is in Figure 4. The herd had increased to 192 cows including 165 milking and 27 in the dry period. Milking cows averaged 178 days in milk. The 27 dry cows required only 68 inseminations to become pregnant. Dry cows averaged 191 days open in the prior lactation (Table 1).

Ninety nine (99) milking cows were confirmed pregnant with 66 becoming pregnant on the first insemination. Pregnant cows (lactating and dry) represented 66.3% of the herd. Twenty seven (27) cows had been bred but were not confirmed pregnant by the veterinarian. Thirty nine (39) cows had not been bred with 4 (2.1% of all cows) greater than 100 days in milk. Nineteen cows or 9.9% of all cows were

less than 60 days in milk. Considering inseminations for all cows, the herd required 2.13 services for each of the 126 pregnancies.

Summary:

1. After 18 months (November 1, 2010 to May 21, 2012) of Salmate feeding the reproductive status of the dairy herd improved markedly.
 - a. Total cow numbers (lactating and dry) increased from 156 to 192.
 - b. Percent of total cows in herd that were pregnant increased from 44.9% (70/156) at the start of the study to 65.6% (127/192).
 - c. Number of cows greater than 100 days in milk that had never been bred decreased from 44 to 4.
 - d. Days open for dry cows averaged 392 (n=17) on November 1, 2010 and 191 (n=27) on May 21, 2012.
 - e. At the start of the study, one pregnancy required 3.40 services; after 18 months a pregnancy resulted from 2.13 services.

Calculating the Economic Value of Salmate

The economic value of Salmate has several components: more cows retained in herd, earlier breeding, reduced number of services per pregnancy and fewer days open. Salmate was fed at 50 g/d at assumed price of \$0.30 per cow per day or \$5443 per ton. The number of milking cows in the Bernard herd averaged 148 during the first 12 months of the study and was 165 cows after 18 months. These numbers approximate 84545 cow-days $(148 \times 365) + (165 \times 185)$. Total Salmate cost at \$0.30 per day was approximately \$46.00 per day. Average number of cows milking per day was 153.7 or 11.1% increase from the start of the study.

Cows persistency of milk production past peak is approximately 96 percent. Explained another way is that milk production declines about 4 percent per month. Assuming cows averaged 64 pounds per day and milk price was \$18.00 per cwt at the start of the study, daily milk income was approximately \$1600 per day for 139 cows. Earlier pregnancies after Salmate feeding resulted in an average of 153.7 cows milked daily once Salmate feeding began. These cows averaged

approximately 30 days in milk less than cows at the start. Using standard persistency calculations would estimate average milk production for these cows at 66.7 pounds per day for an estimated daily income of 1844 per day. Return on Salmate produced a 3.13 to 1 return in milk value for each dollar spent on Salmate.