

LOW COST COW/CALF PROGRAM

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Postpartum Feeding

In the many years that we have been publishing this newsletter, the importance of the cow's body condition - *at the time of calving* - has been discussed more than any other subject. As stated in the last newsletter, a suitable BCS at calving is essential to shorten the postpartum interval (PPI), in order to insure a couple of cycles before breeding on the third. Conception is much more likely on the cow's third cycle than on the first and second. But dangers lurk along the path to the desired BCS. Drought, fire, extremely heavy snows and extended cold spells come to mind. So what is there to do if the cows are not fat at calving? Logic would have us conclude that dietary energy should be increased, prior to introducing the cow to the bull. At least my logic suggests such and I would be wrong. In the student manual and during the School, we cite research studies showing that the PPI actually is lengthened by feeding the thinner cows. Energy portioning causes the problem. Once the cow commences lactation, beau coups (of energy flow) form the tissues to the mammary gland. While the energy flow may be similar for both the fat and thin cow, proportionately the flow is greater with the thin cow that has a smaller energy reserve. Enzymes, that push this mobilization along, are all pointing toward the udder with this cow. When dietary energy is increased, it enters the enzymatic flow toward mammary tissue rather than going to the maternal tissues to help reduce the PPI. To some degree, it may cause a venturi effect and increase the flow of energy from the tissues. This is not the case with the better-conditioned cow. Not all of the enzymatic activity is directed toward milk production. Thus, with an increase of dietary energy, some of the energy goes to the maternal tissues and the PPI will be reduced. When the cow is in the desired BCS, the shortening of the PPI is not necessary but it happens anyway.

Nutraceuticals & Cows¹

¹ Lake, SL, EJ Scholljegerdes, RL Atkinson, V Nayigihugu, SI Paisley, DC Rule, GE Moss, TJ Robinson and BW Hess. 2005. Body condition score at parturition and postpartum supplemental fat effects on cow and calf performance. J.

Researchers at the University of Wyoming took a novel approach to repartitioning of nutrient flow. They gleaned (from the literature and previous work at UW) that certain fatty acids were associated with repartitioning of nutrients to support specific productive functions. One was that supplementation with linoleic acid was attributed to maintenance of greater BCS during lactation. Another was that dietary oleic acid increased milk fat synthesis. *Linoleic acid is an 18-carbon polyunsaturated fatty acid with three double bonds. Those of you in the grass-fed business know it as an Omega-3 fatty acid. Oleic acid is an 18-carbon monounsaturated (one double bond) fatty acid.* Pregnant cows were assigned to two groups. One group was to calve in BCS 4 and the other, BCS 6. The BCS 4 cows were fed to achieve BCS 4 during the second trimester and then fed at maintenance during the last trimester so that prepartum dietary energy did not impact performance. Cows in the BCS 6 group were fed higher energy during both the second and third trimesters to get to the 6. Beginning 3 days postpartum, the cows were dry lotted and placed on diets of the same energy and protein contents, within year of the two-year study. The experimental treatments were control, high-linoleate safflower seed and high-oleate safflower seed.

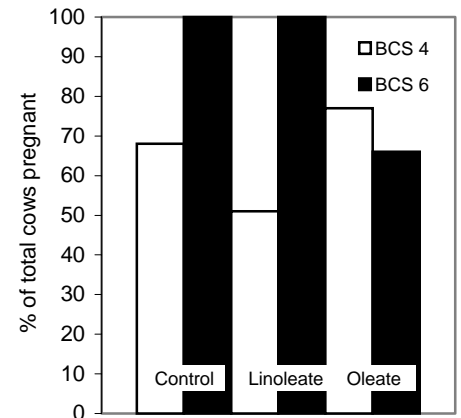
BCS at Parturition

Cows in BCS 4 maintained BCS throughout the 60-day postpartum feeding trial, while the BCS 6-cows lost condition. This change was reflected in calf performance. Birth weights were the same for both groups but 60-day gain was about 11 lb more for the calves whose mothers were in BCS 6. The cows were synchronized for breeding. First and second breedings were with AI, followed by cleanup with bulls. First-service conception rate was 36.1% for the BCS 4 cows and 50% for BCS 6, across all treatments. Overall percentage pregnancy was 63.9 for the fours and 88.9 for the sixes.

Fatty Acid Treatments

Sixty-day BCS was the same for all treat-

ments across both BCS groups. The calves (supplemented with linoleic acid) did not gain quite as much as the controls and oleic acid-fed groups but it was not a biggy.



All of the variables are gathered up and summarized in the chart above. The control cattle (no fatty acid supplement) in BCS 6 all got bred. Similarly, those cattle in BCS 6 at calving (and fed linoleic acid postcalving) reflected a 100% conception. Slightly less than 70% of the BCS 6 cattle (fed oleic acid) conceived, suggesting that the fatty acid accentuated energy flow away from the maternal tissues. Overall conception rate was not good for the cattle calving in BCS 4, indicating that BCS at calving is the primary factor influencing conception rates. This was a very complete study, much of which is not reported here. Invariably, additional studies of this type will be conducted.

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