



CATTLE SENSE

Information that makes sense helping you make cents

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/// Is There a Place for Fat in Beef Cow Diets?

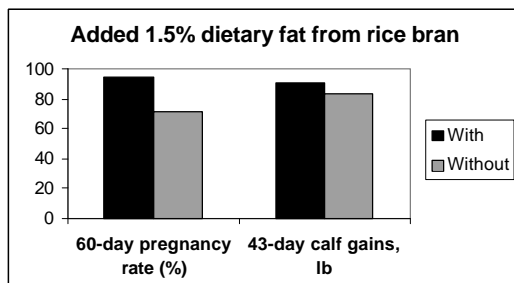
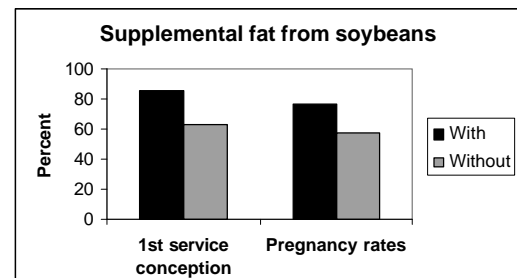
- Faster rebreeding!
- Higher pregnancy rates!
- Heavier weaning weights!
- Improved calf survivability!

If these were the research-based claims for a new feed additive, wouldn't we all be racing to see how it might fit into our nutrition program?

In fact, recent research trials have suggested that low levels of supplemental dietary fat may offer all these benefits to the beef cowherd. The jury is still out on a number of key questions -- how much is needed? how important is type or source of fat? how does it work?? But the results of studies done at a number of universities are certainly promising enough to warrant consideration.

What We've Seen

Work reported last year from Missouri (*Graham et al.*) showed improved reproductive performance in beef cows supplemented during late (last 30 or 45 days) gestation with whole soybeans. Treatments provided equal amounts of protein and energy, but the bean diet contained about .6 lb of additional dietary fat per head per day. First service conception rates in synchronized cattle were improved in two similar experiments. Overall pregnancy rates were also improved (76.6 vs. 57.4%) in one experiment, but not the other. When fat supplementation was delayed until after calving, no responses were seen in reproductive performance.

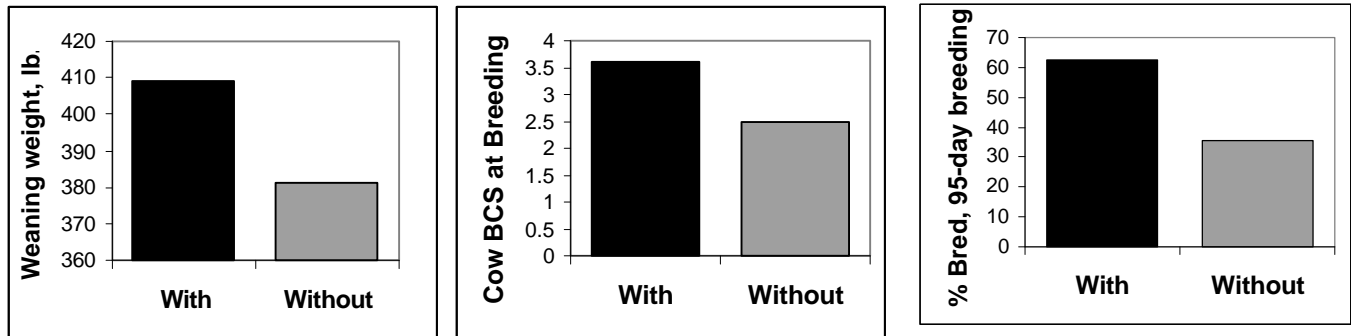


A Texas study (*DeFries et al., 1998*) used rice bran to increase dietary fat during early lactation from 3.7 to 5.2%. In contrast to the post-calving treatment in the Missouri study, the added fat increased pregnancy rates, measured 60 days into the breeding season, and also improved calf gains. Average gains for calves from cows receiving the additional fat were 90.3 lb, vs. 83.0, during the first 43 days; these numbers translate into ADG values of 2.1 and 1.9 lb/head.

A similar study was conducted in Wyoming (*Whitney et al., 2000*), with beef heifers receiving 0, 3, or 6% dietary fat from soy oil during the pre-breeding period. Again, all diets provided equal amounts of protein and energy. Heifers receiving the 3% added oil conceived 10 days earlier. It is possible that the 6% fat level was high enough to impair forage digestion, which could easily offset any other benefits.

A slightly earlier study was conducted in Mexico with 134 beef cows (*Espinoza et al., 1995*), with half the animals receiving 125 g (about ¼ pound) of calcium soaps of fatty acids (Megalac®) per day. Treatments began about 1 month before calving started, and ran for 105 days. Positive responses were seen in calf performance, cow body condition, and reproductive efficiency.

Supplemental Fat (Megalac®) Provided Pre- and Post-Partum



A different hypothesis was tested in a trial conducted in Montana (*Lammoglia et al., 1999*). There, cows received additional dietary fat (4.7 % of dry matter intake) from safflower seeds during late gestation. They found that calves born to these mothers had increased cold tolerance.

"Nutraceutical Benefits"

A nutraceutical can be defined as a feedstuff or feed additive with physiological effects outside of its generally accepted role as a nutrient source. While scientists are beginning to piece together some of the physiologic effects low levels of dietary fat have on processes such as hormone production and clearance, we don't yet have a complete explanation for the results illustrated above. It does seem clear, however, that supplemental fat can serve as a nutraceutical in beef cow herds.

Practical Applications

While there are adequate research results available to build a credible case for feeding some dietary fat to beef cows, a lot more work is needed before we can definitively outline the most effective supplementation strategies. In the meantime, a practical approach may be to provide additional fat during late gestation, and through early lactation until the start of breeding. However, since most cow/calf producers don't feed complete mixed rations to their cattle, supplement delivery options are needed that fit typical operations. It is also not clear how much fat needs to be provided in order to see performance benefits--although at the other end we do know that diets with more than 5% fat typically depress fiber digestion.

Liquid supplements offer a simple, convenient way to bring supplemental fat into the cowherd feeding program. These products are typically offered in lick wheel self-feeders, and can provide needed protein, energy, vitamins and minerals along with the fat. Other operations have found a good fit for liquid supplements as a top-dress, TMR additive, or big bale treatment. A recent review of the use of dietary fats as nutraceuticals for beef cattle (*Williams and Stanko, Texas A&M, 1999*) cited liquid supplements as a viable fat delivery option, noting that the oilseeds used in many of these research trials are not universally available or economically practical.