FATS AND PROTEINS RESEARCH FOUNDATION, INC.

Director's Digest

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POSITIONING ANIMAL FAT IN DAIRY CATTLE RATIONS

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Feeding fat has generally increased persistency of lactation in research trials about 4 to 5 lb. fat-corrected milk per lb. of added fat. This response provides a 50 to 60 cents per cow per day return from feeding a pound of fat. For a fat source that costs about 20 cents per pound, such as animal fat, potential returns over ingredient costs would be about 30 to 40 cents per cow per day. Net returns per 100 cows would be about $5000 assuming a fat supplementation period of only the first 150 days of lactation. Assuming a carryover response to fat feeding after it's withdraw from the ration based upon observations of Pennsylvania and South Dakota researchers, total net lactational returns per 100 cows would be about $8000 for the $3000 invested in the fat supplement over the 150 day feeding period. Body condition and reproductive efficiency have been improved in some, but not all research trials. Commonly used fat sources include whole cottonseed, full-fat soybeans, animal fat, and various ruminally-inert granular fat products.

Herds reaching about 18,000 lb. of milk per lactation are candidates for the first pound of added fat. Herds averaging 20,000 plus lb. of milk per lactation have experienced good success feeding a second pound of supplemental fat. Most herds supplementing fat at high levels are using a combination approach with whole oilseeds and animal fat. Intake of supplemental fat from whole oilseeds should be limited to about 1.5 lb. per cow per day or 3% of ration dry matter (DM). This limits intake of whole oilseeds to 6 to 8 lb. per cow per day or 15% of ration DM. Deciding between whole cottonseed or full-fat soybeans should be based on whether the ration needs additional fiber or protein, as well a local availability and price of these ingredients.

Additional supplemental fat should come from a source relatively insoluble or inert in the rumen, such as animal fat or granular fats, depending upon handling, feeding, palatability and cost considerations. Many herds have experienced good success feeding animal fat at 2% of ration DM (about a pound per cow per day) to high producing cows along with whole oilseeds. Total supplemental fat should be limited to less than 5% of ration DM (3% from whole oilseeds and 2% from animal fat) or less than 2.5 lb. per cow per day. This limits total ration fat levels to less than 7 to 8% of ration DM.

Animal fat must be melted and can be difficult to blend in the total mixed ration (TMR) or feed individually in tie-stall barns, but many commercial dairies have been successful. Blending tallow with the grain or other low fiber ingredients prior to or as it is being added to the TMR is recommended, particularly for tumble type mixers. Some companies have used insulated heating tanks and bulk delivery to make direct on-farm use of animal fat more cost effective and feasible. Blending animal fat with the protein concentrate or grain mix at the feed mill or purchasing commercial high-fat supplements can make it easier to feed animal fat. Diluting animal fat with other feed ingredients and adapting cows gradually to the fat may help alleviate palatability problems. Feeding animal fat in a TMR helps reduce consumption problems, but adapting cows gradually to the fat is still a good practice.

Feeding the first pound of supplemental fat can begin at calving. There may be some benefit to including .25 lb. added fat per cow in the 2-week prefresh ration to better adapt fresh cows to fat feeding. It may be better to delay feeding the second pound of fat until 4 to 6 weeks after calving, since some research suggests that there is little benefit to fat supplementation in the very early stages of lactation. Fat should be fed into the lactation period as long as level of milk production (>70 lb. per day) and body condition (BCS<3.0) merit the extra energy. Formulate rations properly for degradable and undegradable ("bypass") protein when feeding supplemental fat; 18.0 to 18.5% crude protein (CP), 35 to 40% of CP as undegradable, and 30% of CP as soluble. Rations should contain adequate fiber and forage; 19 to 21% ADF, 35 to 40% nonfiber carbohydrate, 27-30% NDF, and 75% of NDF from coarse forage. Balance rations for .9 to 1.0% calcium and .30 to .35% magnesium (DM basis). Monitor persistency of lactation, body condition and reproductive efficiency to evaluate the response to fat supplementation.