



WEST CENTRAL®

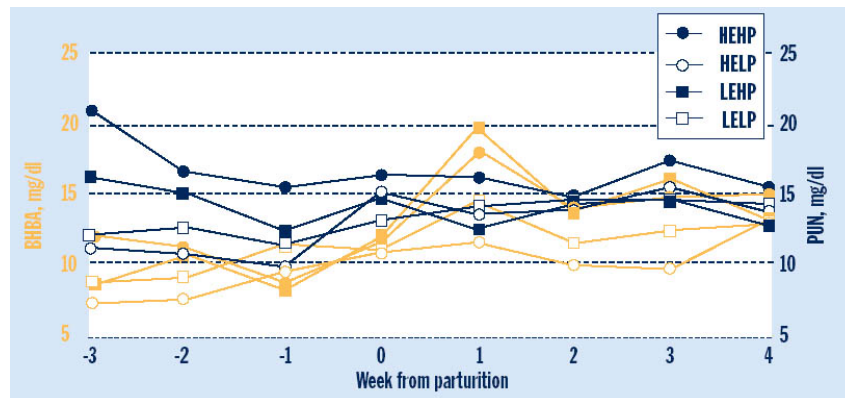
SoyChlor®

## Technical Bulletin

Research suggests that herds prone to fatty livers should not feed diets containing large amounts of soluble protein and non-protein nitrogen (NPN).

In *in vitro* studies with bovine liver cells, cells that were exposed to elevated nonesterified fatty acid (NEFA) levels had decreased ability to detoxify ammonia to urea (1,2). This as a possible reason for the increased morbidity of dairy cows diagnosed with fatty liver (3). Additionally, overfeeding protein may actually cause an increase in fat metabolism (4).

Recent work conducted at the University of Alberta (5) began feeding cows at 21 days before expected calving one of four diets: high energy-high protein (HEHP), high energy-low protein (HELP), low energy-high protein (LEHP), or low energy-low protein (LELP). Liver biopsies and blood samples before and during the trial demonstrate the relative effect excess protein can have on the animal's ammonia load and ketone bodies in the blood.



The crude protein requirement for close-up cows is 12% of the complete ration's dry matter (6). This requirement is easily met in most close-up rations. However overfeeding protein has become commonplace due to the addition of anionic salts and supplements containing high levels of protein and NPN.

SoyChlor® is formulated to a relatively low 20% CP with all natural protein sources so that the nutritionist has more control over the protein level of the ration and can avoid the NPN that may cause problems for the close-up dairy cow.

When feeding heifers and cows together it may be best to feed for the protein requirements of the heifers (15% CP) in order to meet their growth requirements. This additional protein should not come from NPN sources.

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5. Doepel L, Lapierre H, Kennelly JJ. 2002. Peripartum Performance and Metabolism of Dairy Cows in Response to Prepartum Energy and Protein Intake. *J Dairy Sci.* 85:2315
6. National Research Council. 2001. Nutrient Requirements of Dairy Cattle. 7th rev. ed. Natl. Acad. Sci., Washington, D.C.