Non-Esterified Fatty Acid Testing

Colorado State University Diagnostic Lab is now offering the Non-Esterified Fatty Acid (NEFA) test to veterinarians. Dr. Dwayne Hamar developed this test at the CSU D-Lab and it became available on November 6, 2008. NEFA testing is used to evaluate the level of free fatty acids in the blood of cattle. The results are used to evaluate the nutritional plane of dry dairy cows that are close to calving.

NEFA testing may be used as a management tool to ensure parturient cows are on the correct level of nutrition. If NEFA levels are elevated above normal the cow is metabolizing adipose tissue more than she should to maintain her condition as a parturient cow. This cow should be on a better plane of nutrition. If NEFA levels are below normal levels the plane of nutrition could be lowered appropriately. If 40% of the test samples run on a dry pen of cows are above the goal levels it is considered significant problem with pre-partum negative energy balance and excessive adipose mobilization. A serum sample from a red top clot tube is used to run the test.

It is better to evaluate at least 10 % – 20 % of your dry cows to get an accurate representation of the dry pen. If 10 or more samples are run the cost of the test is $8.00/sample. If fewer that 10 samples are run the cost will be $14.00/sample.

Goal values for serum NEFA concentrations:

1. <0.32mEq/L if the cow is more than two weeks prior to calving.
2. <0.40 mEq/L if the cow is 2 weeks to 2 days prior to calving.
3. Serum NEFA concentrations of cows within two days of calving are usually high and difficult to interpret.
4. Elevated NEFA serum concentrations in greater than 40%of animals tested indicated a negative energy balance and excessive adipose metabolism.

NEFA testing gives cattle producers the opportunity to ensure their cows are on the optimum plane of nutrition prior to calving. Their overall health will be improved and metabolic disease can be minimized as well as ensuring the cow's immune system is at good level to respond to disease.