



## **How to use the LC-Mini combined with LactiLog for Feed Efficiency to improve best results at lowest cost.**

Feed efficiency is a measurement for the relative ability of cows to turn feed nutrients into milk volume and/or milk components. Put another way - how well a cow converts the dry matter (feed) consumed into milk volume (pound of yield) and components (fat and protein).

We will not go into how and what to feed the cows - this is a question for your nutritionist (herd mgr or vet). What we can provide is a tool that shows the efficiency of feed and feed changes.

Feed Efficiency (FE) should always be a consideration when feeding dairy cows and becomes even more important during times when the profit margins are falling (high input and low returns). A way to combat these lowering profit margins is to increase the milk yield from every pound of dry matter fed. An added benefit to increasing cows' feed efficiency is that fewer nutrients will be excreted in manure, so feed efficiency affects both economic and environmental efficiency.

Studies show that it is important to optimize rather than maximize dry matter intake in the cow. In many situations getting more dry matter intake in a high producing dairy cow is an economically sound practice. However, in some circumstances the cost of having a more energy dense or digestible diet may be more expensive than the return gained from increased milk yield. This is what the combination of the LC-Mini and the LactiLog is made for - to measure the cow's feed efficiency and provide not only data but information to be used to determine correct feed decisions. You can with this combination measure individual cows, milking groups and/or bulk tanks all based on your decision of how deeply you want to integrate this tool into your herd management.

Convert your milk data into Energy Corrected Milk.

Beside getting your ECM results, it is of importance that the actual Dry Matter Intake (DMI) is known and also for nutritional content of the DM used to be able to get the complete Feed Efficiency. ECM is a base line measurement converting the cow's milk yield and milk components into a unified unit, which then can be used to compare efficiency results between cows getting the same feed or see efficiency changes when feed is changed.

The LactiLog is receiving the milk composition input from the LC-Mini, and stores this data in its milk database. When requested it convert the result into Base ECM (Base ECM is the ECM result without the yield) - this is used if only composition based feed efficiency is of interest (specifically used when milk is delivered for cheese making). The basic ECM can now have the yield added to it to give the full ECM number. The calculation used is based on (Tyrrell and Reid, 1965) and is the most accepted ECM conversion formula in the dairy industry (others formulas do exist). The ECM results are now directly available to be used for the decision making.

Note: The Income over Feed Cost (IOFC) is directly comparable to the ECM. A low ECM = LOW IOFC and High ECM = High IOFC!

IOFC is calculated as follows:

All-milk price per cwt x (daily average milk production / 100) - daily feed cost per cow

For details in the economical advantages - kindly see Penn State University's excellent article on Feed Efficiency in relationship to income:

<https://extension.psu.edu/feed-efficiency-in-lactating-cows-and-relationship-to-income-over-feed-costs>