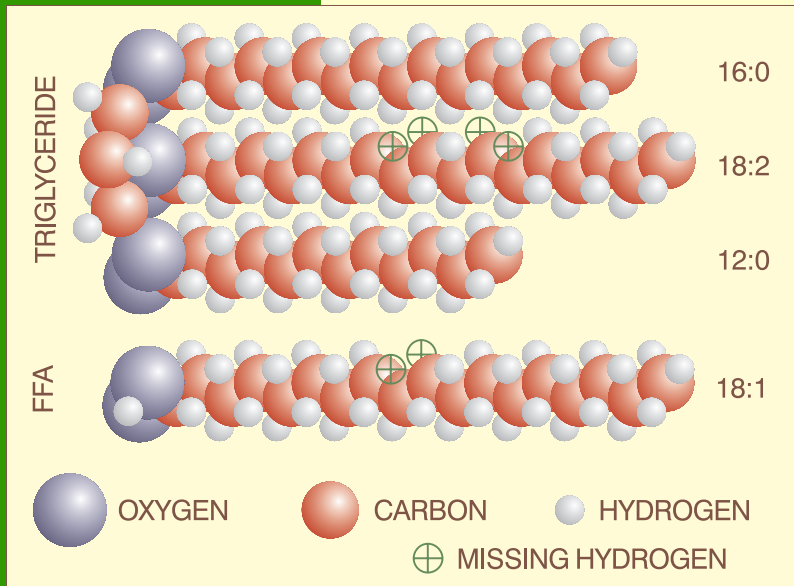


# Fats and Oils

Fats and oils are included in dairy diets to increase their energy density. A lactating cow can derive about 5.84 Megacalories (Mcal) of Net Energy for Lactation (NE<sub>L</sub>) from a kilogram (kg) of tallow, compared to about 1.95 Mcal NE<sub>L</sub>/kg DM from barley.



Fats and oils are mainly composed of *long-chain fatty acids* (LCFAs). As their name implies, LCFAs are long chains of carbon atoms with hydrogen atoms attached, as illustrated in the figure on the left. The most common fatty acids found in feed supplements are 16 and 18 carbons in length. These can be found either combined with one or two other fatty acid as *di-* or *triglycerides*, or free, as *free fatty acids* (FFA). Most of the products used in dairy rations contain only small proportions of FFA but a few, notably Energy Booster®, Aristofat Golden Flake® and Megalac® are mainly FFA.

When every carbon atom in a FFA has the maximum number of hydrogen atoms attached (two), the fatty acid is *saturated*. When a pair of hydrogen atoms is missing (one from each of two adjacent carbons), the fatty acid is *mono-unsaturated*. If 2 or more pairs are missing, the fatty acid is *polyunsaturated*.

for more information:

[Facts about Fats](#), Alberta Dairy Management

[Profitable Fat Feeding](#), Alberta Dairy Management

[The Effect of Dietary Fat Source on Performance](#), University of Alberta Dairy Research Highlights