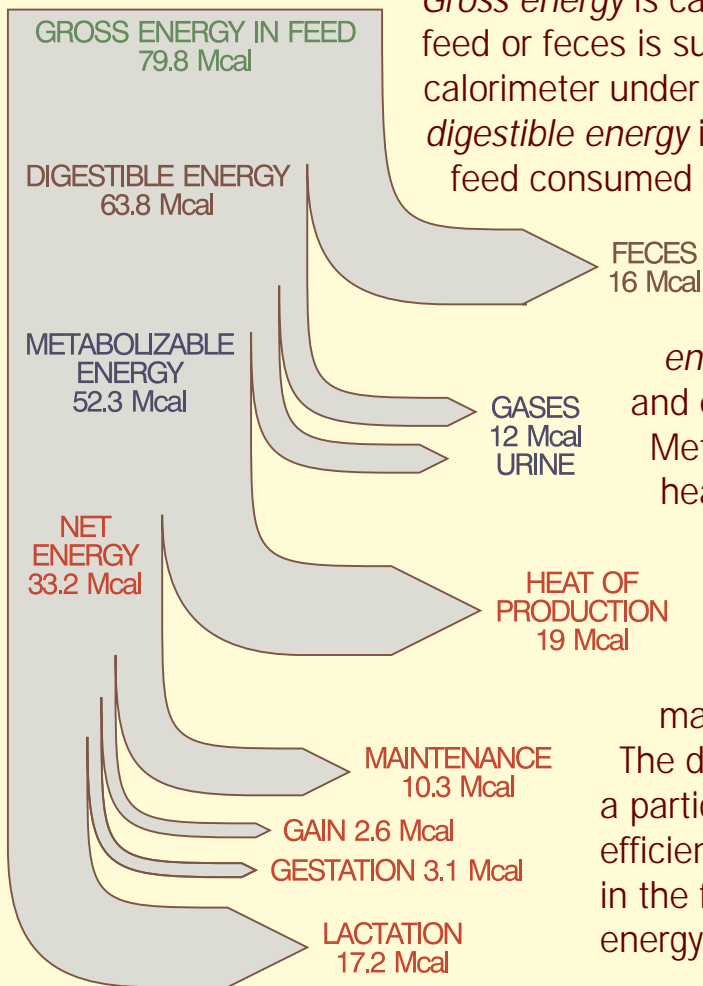


Energy Partitioning



Partitioning of energy in a 3rd lactation cow, weighing 650 kg, producing 25 kg/day of 3.5% bf milk, gaining 0.5 kg/day at 300 days in milk, 220 days pregnant.

Gross energy is calculated from the heat produced when a sample of feed or feces is subjected to complete combustion in a bomb calorimeter under a pressurized oxygen atmosphere. Apparent *digestible energy* is the difference between the gross energy of the feed consumed and the gross energy of the feces excreted.

Digestion is accompanied by the production of gases in both fore- and hindgut and by the urinary excretion of metabolites. *Metabolizable energy* is the difference between digestible energy and energy lost to gases and urine.

Metabolic processes and physical activity produce heat (*heat of production*) which may warm the animal in cold weather. In hot weather, energy may be required to expel excess heat of production, through panting and increased respiratory rate.

Net energy is the remaining energy available for maintenance, reproduction and production.

The diagram on the left illustrates energy partitioning for a particular cow near the end of her lactation. Energetic efficiency of this cow is about 29%, expressed as output in the form of milk, gain and fetal growth divided by gross energy input. Although their energy requirements are significantly greater, higher producing cows are also more energetically efficient.

for more information:

[Every Extra Pound is Profit](#), Alberta Dairy Management

[What You Can Do About High Feed Costs](#), Alberta Dairy Management

[\\$/hL or Return Over Feed Cost?](#), Alberta Dairy Management