

Ketosis

Ketosis is a metabolic disorder that usually occurs 10 days to 6 weeks after calving in high-producing cows. The initiating event is a drop in blood glucose concentration. Since the cow absorbs little glucose from her diet, most of the glucose required for mammary [lactose synthesis](#) must be derived, through [gluconeogenesis](#), from [propionic](#) and [amino acids](#). High demand for lactose in early lactation and/or reduced availability of glucose precursors due to inadequate feed intake trigger the [hypoglycemia](#) (low blood glucose). Low feed intake may be due to [acidosis](#), [milk fever](#), [metritis](#) or [displaced abomasum](#).

In response to the hypoglycemia, fat is mobilized from tissue depots and is taken up by the liver. End-products of liver fat metabolism are the ketones: acetone, acetoacetic acid and beta-hydroxy butyric acid. These can be detected in blood, milk, urine and exhaled air. Since urine concentrations are usually 4 times those in blood and 8 times those in milk, a simple colorimetric urine test will detect an elevated level.

Accumulation of fat in the liver (see [fatty liver syndrome](#)) reduces its capacity for gluconeogenesis. Therefore, every effort should be made to correct the hypoglycemia in the early stages, before gluconeogenesis becomes severely impaired. Intravenous glucose may have some immediate benefit, but propylene glycol administered as a drench is the preferred treatment. Feeding [Rumensin®](#) in early lactation has been shown to reduce the incidence of ketosis.

Animals affected with clinical ketosis go off-feed, become constipated and depressed, lose body condition and reduce milk production. A majority of high-producing cows likely experience some degree of subclinical ketosis in early lactation without exhibiting any obvious symptoms. It has also been demonstrated that [reduced feed intake](#) in the last few days before calving can provoke fat mobilization and accumulation in the liver which may predispose cows to ketosis post-partum.

for more information:

[Fresh Cow Problems: How to control them](#), *Hoard's Dairyman Books*