

## Can serum copper testing help base decisions on supplementation programs?

The answer is yes it can, to a limited degree.

Serum copper is most helpful for investigating copper deficiency as a cause of ill thrift.

Because the liver is the storage organ for copper, serum levels do not decrease until the liver reserves are exhausted. Therefore, by the time serum copper is low, negative health effects can already be present. In addition, serum levels remain stable with excess supplementation, therefore serum copper will not be helpful in detecting animals that have excess liver reserves until an acute haemolytic crisis occurs.

Serum copper can be used in the spring to assess supplementation programs as this is the time of year when liver reserves are at their nadir. Adequate serum copper at this time suggests the copper supplementation program is adequate.

In the autumn, if decisions about copper supplementation need to be made, then liver biopsies are much more informative. Ideally, 12 biopsies should be taken, as copper reserves can be quite variable within a herd, with some animals being deficient and other nearing toxic levels (Grace *et. al.* 2010).

### Reference:

ND Grace , SO Knowles, AR Hittmann. High and variable copper status identified among dairy herds in the Waikato region by concentrations of Cu in liver sourced from biopsies and cull cows. New Zealand Veterinary Journal 58(3), 130-136, 2010

