When silage is put up too dry (greater than 50% dry matter) or hay too wet (less than 85% dry matter), excessive heating may cause some of the protein in the crop to become irreversibly bound to lignin. Heating during the processing of feeds (e.g. pelleting) can have the same effect.

The severity of heat damage is estimated in the feed lab by measuring the amount of nitrogen (N) associated with the Acid Detergent Fibre (ADF) residue. Depending on the feed lab, this fraction may be reported as Acid Detergent Insoluble Nitrogen (ADIN), Acid Detergent Insoluble Protein (ADIP), Acid Detergent Fibre Nitrogen (ADF-N), Acid Detergent Fibre Protein (ADF-P) or Heat-damaged Protein, expressed as a percentage of either total N, total crude protein or feed dry matter. Nitrogen values are multiplied by 6.25 to convert to Protein values.

In most feeds, 3-8% of total CP will be associated with the ADF residue, even in the complete absence of heating. Therefore, most feed labs do not discount the total CP value for heat damage unless ADIN values are excessive. Others assume that a fixed proportion (e.g. 70%) of ADIN is unavailable. Discounted CP (Total CP - ADIP or Total CP - excess ADIP) values are often reported as Adjusted Crude Protein (ACP).