Modelling Metabolic Energy by Neural Networks

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Abstract

The apparent metabolic energy (EMA) from barley is modelled as a function of 12 easily obtainable analytical parameters by applying neural networks with the error-backpropagation learning strategy. Kohonen maps and Ward's clustering technique have been used to define the objects for the training and test sets. The architecture of the neural network and the relevant parameters of error-backpropagation learning have been optimised providing a RMS of 1.081 and a correlation coefficient (predicted versus found values) of 0.82. Contour maps of all variables including the output EMA value have been obtained applying the counter-propagation learning strategy in a two-layer neural network. The responses yielded by the networks show that this method is capable of establishing a quantitative relationship between EMA and the original variables.

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