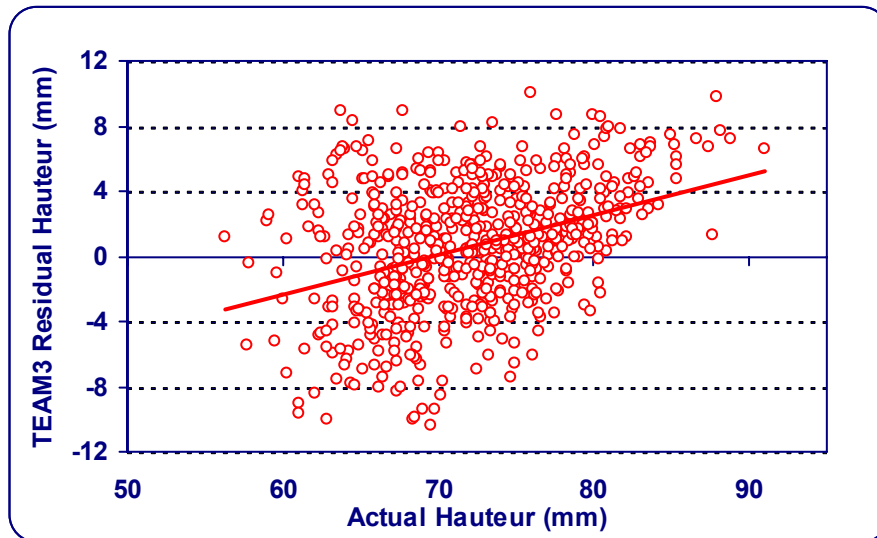


In the development of the TEAM-3 formulae, analysis was conducted on the differences between actual Hauteur and the predicted Hauteur (TEAM formula). These differences are known as the Hauteur Residuals and are plotted below for the TEAM-3 database. It is clear that the residuals become larger as Hauteur increases. If all parameters having an influence on Hauteur were included in the regression model, then it would be expected that a random scatter around zero would be present. The observed trend suggests that a factor is possibly missing in the regression model.



These trends were further analysed and it was found that the samples with low CVH values tended to have positive residuals (processed longer than predicted) and those samples with high CVH tended to have negative residuals (processed shorter than expected). The analysis of Hauteur diagrams showed that samples having low CVH have a very low level of short fibre content. It appears that they have been combed with the aim to remove as much short fibre as possible, whereas those with high CVH values appear to be opposite with an abundance of short fibres present.

Changes to machine settings during processing can therefore impact significantly on the difference between predicted and actual Hauteur. Although clearly CVH is not known prior to processing, it was included in a statistical analysis of the TEAM-3 data to see what impact it had on the regression model. The table below shows that the inclusion of CVH in a prediction model significantly decreases the Standard Error and increases the R<sup>2</sup> of the model. When the residuals were then plotted (as per the graph above) a scatter around the zero line was evident.

Regression	SL	SS	D	M	V	CVD	CVL	CVH	SE	R <sup>2</sup>
1 TEAM-3	0.43	0.35	1.38	-0.15	-0.45	-0.59	-0.32		2.49	83%
2 TEAM-3 + CVH	0.65	0.11	0.70	-0.02	-0.45	-0.43	-0.07	-0.72	1.66	92%

If different comb settings are used for the same greasy wool input the residual (Actual – Predicted) values obtained will be affected. This can occur either within the same mill, to meet an individual customers requirements, or between mills. The net result is to increase the variation experienced in attempting to predict processing outcomes if they are not incorporated into the formula (in this case CVH).