

**COMPARISON OF CONJUGATE GRADIENT METHODS FOR
DEVELOPING THE MULTIPLE LINEAR REGRESSION MODEL
FOR RUBBER YIELD IN MALAYSIA**

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DECLARATION BY CANDIDATE

I certify that this report and the project to which it refers it refer is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledge in accordance with the standard referring practices of the discipline.



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ABSTRACT

Regression analysis is known as a statistical technique for estimating the relationship between variables which have reason and result relation. In this research, regression models with one dependent variable and more than one independent's variable called multiple linear regression (MLR) is been used to produce a regression model for rubber yield in Malaysia. Meanwhile, Conjugate Gradient (CG) method is used to solve regression parameter through the normal equation since it is a well-known method due to the simplicity, easiness and low memory requirement. The selected CG formulas are from classical CG which is Fletcher-Reeves (FR), Polak-Ribiere-Polyak (PRP), Hestenes-Stiefel (HS), and Rivaie et al. (RMIL). Then, the result from MLR, selected variants of CG method and inverse matrix method will be compared. Based on the result, beta coefficient of CG-FR proved to be best method to produce the best regression model with the least root mean square error value.

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