AN EFFICIENCY INDEX FOR SELECTION OF BRUSH WEED CUTTER

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Received: 28 April 2014 Accepted: 20 October 2014

Siju, T. (2014). An efficiency index for selection of brush weed cutter. *Rubber Science*, 27(2): 243-247.

The brush weed cutters tested at Rubber Research Institute of India were ranked based on the comparative performance from a techno-economic perspective. The parameters used for evaluvating the brush weed cutters were assigned weights by expert judgement method and statistical method. The statistical method of assigning weights is preferred due to its unbiased nature. The final rankings of the weed cutters were influenced by the changes in weights given by the methods.

Keywords: Efficiency index, Expert judgement, Ranks, Statistical method, Weights

Various machineries and products are tested and certified by the Rubber Research Institute of India (RRII) for their performance. Though the selection and certification of machineries/products are based on certain parameters, no scientific attempt has been made to compare the performance from a techno-economic perspective. The construction of an efficiency index is useful for an in-house understanding on the comparative performance and for commercial application depending on the requirements.

This paper is a preliminary attempt to develop an index for comparison and ranking of brush weed cutters using their field test results.

The relevant data were obtained from the test results of brush weed cutters conducted in Central Experiment Station (CES), Chethackal of RRII. The data included price of the cutters, fuel consumption, thread consumption, time taken to weed per unit area, weight of the equipment, fuel tank capacity, type of engine (2/4stroke) and working conditions.The following steps were involved in the construction of index:

- The parameters of different units/ scales were normalized.
- An index was constructed by signing weights to the parameters.
- Weights to the parameters were assigned in two ways, *viz.*,
  - (i) Expert judgment method
  - (ii) Using statistical methods.
- The weights were multiplied with the normalized scores of parameters to obtain the index.
- The brush cutters were ranked based on the indices.

Table 1 provides the data as recorded at CES, Chethackal against the parameters considered. The methodology used in UNDP's Human Development Index

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