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COMPARISON OF USEFUL LIFE OF TRACTORS BY CONDITION MONITORING (CM) AND BREAKDOWN MAINTENANCE (BM) IN IRAN

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ABSTRACT Repair and maintenance costs are one of the most important factors considered when replacing agricultural machineries. The decision is often based on the useful life of machineries. In this research CM of MF285 and MF399 by engine oil analysis was done to find optimum life time of tractor substitution in comparison with BM method in Iran. All recorded information about fixed and variable costs were selected as base data and analyzed. Data were divided based on period of annual working time. Using power regression analysis lead from mathematical models to optimum life time definition. The model for MF399 was found as $Y=1.7345 X^{1.1123}$; for MF 285, $Y=0.11281 X^{0.96324}$. In this case cumulative working time (X) was selected as independent and cumulative costs based on definite percent of initial price (Y) as dependent variable. Results showed that in CM method estimated a useful life 13 and 11 years for the MF399 and MF285, respectively. The BM method estimated a useful life of 11.5 and 8.5 years for the MF399 and MF 285, respectively.

Keywords: Condition monitoring, Breakdown maintenance, Oil analysis, Useful life, Tractor.