FIELD PERFORMANCES OF AUTOPILOT AND CONVENTIONL MODES IN DRIVING A TRACTOR: A PRELIMINARY COMPARATIVES STUDY ON A ROUGH-MODERATE OBSTACLES TERRAIN ENVIRONMENT

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ABSTRACT

As the agricultural rose up in this era, many agricultural tractors are being introduced with new improvements. This is to ensure that the farmers can maximize the tractor to obtain high productivity and no longer depend on the conventional tractor. However, field conditions play a role in determining the most suitable driving mode on the farm. Hence, a comparative study was carried out to compare the field performances between conventional driving and autopilot driving modes in a rough to moderate obstacle terrain environment. New Holland Td5.75 tractor with the POLAR Heart Rate Monitor was used to record the data for comparing the heart rate, energy expenditure and the effective field capacity (EFC) between conventional manual and autopilot driving mode in a tractor. Replication was made 3 times for each driving mode. The result was analyzed by using Statistical Packages for the Social Science (SPSS) version 22. The findings showed that both mean increases in heart rate and energy expenditure of the operator driving tractor with autopilot and conventional mode are significantly different. Meanwhile, the effective field capacity of the tractor driving with autopilot mode was higher as compared to the conventional driving mode. Generally, the conventional driving mode works better at rough to moderate obstacles terrain environment. However, a proper further study needs to be done with more numbers of operators with appropriate temperature to obtain the accurate result.

Keywords: autopilot tractor, field performances, conventional method, mechanization, driving modes