

Abstract

Study of Combine Harvester Remote Monitoring Systems for Fuel Consumption and Environmental Impact Control [†]

Antanas Juostas * and Egle Jotautiene

Department of Agriculture Engineering and Safety, Vytautas Magnus University Agriculture Academy, Studentu Str. 15A, Kaunas District, LT53362 Akademija, Lithuania; egle.jotautiene@vdu.lt

* Correspondence: antanas.juostas@ba-machinery.lt

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Abstract: The European Union's Green Deal calls for action to promote climate change mitigation. European Commission adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. The agriculture sector more widely offers the remote sensing systems in modern intelligent farming systems. With the development and complexity of information systems, there are problems with the analysis and use of telemetry data. With the development and complexity of information systems, there are opportunities for the analysis, use and application of telemetry data. For the research the sets of harvesting process data of three identical Lexion 770 TT (Terra Trac) combines, collected and stored in the Telemetry system, were taken. The analysis of the data of the Telemetry system showed that the efficiency of the combine and the reduction of fuel consumption significantly depend on the organization of working processes. The data of the structure working time in Telemetry were showed that the combine devoted from 35 to 57% of the total day working time to the technological process. When combine harvesters worked in automatic steering mode, the fuel consumption was by 22.02% lower than with manual steering. In summary, it can be said that the analysis of the structure of work processes provides detailed information that allows decisions to be made to increase the overall productivity of the machine and to optimize work processes.

Keywords: combine harvester; remote monitoring; environment; fuel consumption



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