THE AREA OF CONTACT AND ROLLING RESISTANCE COEFFICIENT OF TYRES INTERACTING WITH OFF-ROADS

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Abstract

Driving Tyre characteristics are very important to define the tyre properties such as tractive performance. Therfore, a test rig was designed for measurements. The footprint method was used to determine the dimensions of the tyre contact area. The properties of the used soil were measured, then the rolling resistance coefficient is determined.

The effect of many parameters such as inflation pressure, load and different types of surface were studied for tractor drive tyre. Also, the effect of amount of water inside the rear tractor tyre on the tyre contact area and rolling resistance coefficient was studied. The tractive performance is presented as a function of the tyre contact area and the coefficient of the rolling resistance. The results showed that the tractive performance can be improved with reducing the inflation pressure or, increasing load and the amount of water inside the tractor tyre. Increasing the inflation pressure and load or reducing the water percentage inside the tractor tyre would result in increasing the rolling resistance coefficient.