

SUMMARY

The dissertation presents the result of testing the adhesion force, the adhesion coefficient and horizontal displacements on the example of a non-driven wheel of an agricultural vehicle (trailer). The tests were carried out under laboratory conditions on four types of substrates (dry granite cubes, wet granite cubes, hardened dry soil and hardened wet soil). It was assumed that the tests simulated the trailer wheel braking proces. The influence of the vertical wheel load and tire air pressure on the value of the analyzed parameters was examined. It has been shown that the vertical load has a significant impact on all the analyzed parameters (an increase in the load causes an increase in the value of the adhesion force and the adhesion coefficient and a decrease in the horizontal displacement). However, no significant influence of tire pressure on these parameters was found. The final part of the research was the use of the results of the experiment to conduct a computer simulation assuming braking of a set of vehicles: agricultural tractor - agricultural trailer in different conditions and at different speeds. The purpose of the simulation was to illustrate the behavior mechanisms of the towed vehicle (trailer) influencing the tractor's traffic safety.