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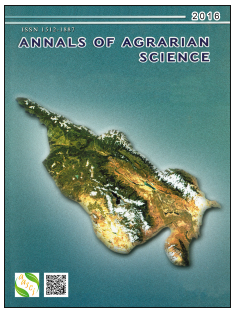

Computer designing principles of the working organ of land cultivation machines upon the wedge example

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Computer designing principles of the working organ of land cultivation machines upon the wedge example

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A B S T R A C T

By the results of theoretical-experimental research is approved that the drag resistance of the groundwork vehicles mainly depends on the state of cultivated environment, properties, structural parameters of working organ and kinematic regime of system [1].
Increasing soil specific resistance results in serious obstacles of the work of the working organ and deterioration of the technological process.
For modeling the interaction between the soil and the working organs have been studied computerized automated design possibilities. Comparison of soil tension and deformation values by SOLIDWORKS software tool allows you to conclude that the 3-fold increase in the angle of the wedge blade to a 24% increase in soil strain and the vertical deformation doubles. Simultaneously, during the design of the working organs, it is possible to obtain functional connections between different parameters, observing the essence of these connections and improving the structure of the working organ.
Keywords: Working organ, Modeling, Strain, Soil, Deformation, Wedge

INTRODUCTION

According to the results of theoretical-experimental research draught resistance of the land cultivation machines is mainly dependent on condition of the processed environment, properties, the structural parameters of working organ and the kinematic regime of the system.Increasing soil specific resistance results in serious obstacles to the work of the working organ and deterioration of the technological process.
For modeling the interaction between the soil and the working organs has been studied **computerized automated design** possibilities, through which the nature of the interaction will be more prominent.
Computerized automated design tool can be viewed as finite element computing systems which with the help of the computer and the corresponding software tools allow to model soil-working organ interaction and to extract data from various modular dimensions which would require the results of the sample of test experiment.
Finite Element Analysis (FEA) is widely used in the solution of problems of mechanical systems, such as interactions of solid bodies and deformations[2,3]. The necessity of such analyzes arises in automated designing systems when it is necessary to make the analysis of the process without the preparation of a real sample during the digital modeling of the project. Finite Element Analysis(FEA) is based on a finite element method, which is method of the solution of the differential and integrated equations with private derivatives[4].As the title of the analysis