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home **page** about **us** contact 

us

Table of Contents

IN PRESS

RAE 2013

RAE 2012

RAE 2011

RAE 2010

RAE 2009

RAE 2008

RAE 2007

RAE 2006

RAE 2005

RAE 2004

RAE 2003

RAE Home

**Editorial
Board**

For Authors

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

For Reviewers

- **Guide for Reviewers**
- **Reviewers Login**

Subscription

Res. Agr. Eng.

A. Janeček, M. Mikleš

Ecological aspect of mobile systems

operated in terrain conditions

Res. Agr. Eng., 49 (2003): 119-123

In this paper is evaluated an optimal constructional and operating performance of the mobil terrain system, that works in forest ecosystems from point of view of volume of processed biomass and total amount of logging transport erosion. A monitored terrain system, working in forestry, is considered as a production system, with its material and energy flow. The determination value, that optimizes the production system, is the operating and constructional performance. In this paper is evaluated the amount erosion in dependence of cutting mass, by means of mathematics and from system point of view. The conditions for the mobile terrain system work, that insure optimal, i.e. minimal value of erosion will be determined. The theoretical results are verified. The optimal values of soil erosion are determined by experimental measurements. The principles of the paper are based on theses of ecological synthesis that determine coupling between dissipative energy of a production system and its ecological cleanliness of work.

Keywords:

mobile terrain system; forest ecosystem;
mathematical simulation

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