OPTIMIZATION OF WOOD TRANSPORTATION THROUGH TRUCKS FROM WOOD CUTTING AREAS TO CUSTOM CENTER USING GIS TECHNOLOGIES

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In recent years there has been a significant development of the agrarian sector in Bulgaria and a lasting tendency for the consolidation of agricultural arable lands. The establishment of large arable land masses is made in order to simplify the technological operations in the management of agricultural land. In much of Bulgaria, the agricultural territories completely surround the forest fund. The treatment of Polish roads and the lack of access to forest areas leads to the hindering of any activity in forests - harvesting, icing, keeping, guarding special uses, hunting, etc. After analyzing the freight transport process and optimizing the freight routes, a 25-30% reduction in transport distances has been achieved, with productivity gains. The highest percentage of the transport cycle is at the expense of the movement of the transport machine on agricultural roads.

Object of research

The subject of the study are the STEYR (forwarded trucks) (tr) and unloading (tpапт) called a course. The time (Tк) for transporting timber from forest areas to consumer centers (Fig. 1). The trucks are all-terrain and all-wheel drive. This allows to overcome significant irregularities in the terrain and allows it to move without difficulty under poor road conditions and in some cases without pavement. When traveling on the national road network, they are moving at a higher speed, which also achieves a high productivity of the transport process.

Fig. 1 High Passage Truck

Timber transport routes The transport of timber was emigrated to northeastern Bulgaria, where agriculture is best developed (Fig. 2). Large agricultural blocks require truck traffic to be made around the periphery, and in some cases due to lack of road, even directly on arable farmland.

Fig. 2 Timber transport routes

Methodology

The transport process consists of a series of sequential and interconnected operations. For the transportation of timber, the completed cycle (from temporary storage to transfer) of the transport process consists of the following operations:
- Move empty trucks to temporary warehouses;
- Timber loading;
- Moving trucks from temporary warehouses to consumers;
- Timber unloading.

The complete cycle of the transport process, including: unladen movement (трт), loading (трос), loaded moving (тпос), and unloading (тпапт) is called a course. The time (Tк) for transporting timber from forest areas to consumer centers (Fig. 1). The trucks are all-terrain and all-wheel drive. This allows to overcome significant irregularities in the terrain and allows it to move without difficulty under poor road conditions and in some cases without pavement. When traveling on the national road network, they are moving at a higher speed, which also achieves a high productivity of the transport process.

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ACKNOWLEDGEMENTS
This document was supported by the grant No BG05M2OP001-2.009-0034-C01, financed by the Science and Education for Smart Growth Operational Program (2014-2020) and co-financed by the EU through the ESIF.