

***COMPLEX OF FOREST MACHINERY FOR SHORT WOOD LOGGING IN
INTERMEDIATE TREE FELLINGS WITH THE POSSIBILITY OF HARD-TO-REACH
CUTTING AREAS DEVELOPMENT.***

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Currently, practically all logging enterprises of the Republic of Belarus are equipped with machine complexes comprising harvesters and forwarders. Application of the given complexes allows reaching high labour productivity (to 100 m³ per shift in final fellings and 60 m³ in improvement fellings) at high operating safety indexes and ecological compatibility of forestry machinery with the environment.

In collaboration with the scientists of BSTU, Republican unitary enterprise “Minsk tractor plant” has mastered the production of logging complex “harvester - forwarder”, which is actively being put in operation at logging enterprises of the Republic of Belarus. The advantage of this machine system is the possibility of effective hard-to-reach cutting areas development sited in swampy and low areas with the assistance of load-haul-dump machines with the combined (wheel-track) off-road capability driver. The increase of logging operations efficiency is caused by the index rise in towing coupler characteristics. The use of easy-off tracks (installation takes 30-40 min) allows exploitation the preferable type of driver having high factors of towing coupler characteristics.

The analysis of the results of the theoretical research and harvester tests while making intermediate fellings proved car arrangement, dimensional and mass parameters of the main chassis as well as technological equipment to provide the possibility of logging machine to work in forest stands with tree length 0,18 – 0,22 m within the working area of technological equipment. Treatment of trees with 520 mm in diameter (maximum diameter of treatment with harvester head) is limited by manipulator extension up to 8,3 m.

The novelty of the design project is in possibility to exploit the machine system of domestic production effectively while developing cutting areas sited on soils with various bearing capacity during intermediate tree fellings.

The created logging complex is being under pilot tests at the enterprises of the Ministry of forestry. According to the results of operation tests, it has been determined that the developed system of forestry machinery is not only in line with the best world analogues, but some of its characteristics are much more efficient than that ones.