

ANALYSIS OF WOOD HARVESTING TECHNOLOGIES FOR FOREST MANAGEMENT ACTIVITIES IN FIELD-PROTECTING SHELTERBELTS

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Purpose of work. Analysis of wood harvesting technologies in field-protecting shelterbelts and its processing in wood chips. Determination of the wood chips production costs from the use of chipper productivity and transport distance.

Results.

Field-protecting shelterbelts (FPSB) occupy an area of about 446.1 thous. ha in Ukraine. Unfortunately, they are now neglected and cannot play their protection role. In accordance with Article 37¹ of the Land Code of Ukraine¹, which was entered into force from the 1st of January 2019, land plots with FPSB, which restrict an array of agricultural lands, are transferred to the permanent use of state or communal specialized enterprises or for rent to individuals and entities with the obligatory inclusion in the rent agreement of land conditions for the maintenance and preservation of such shelterbelts and ensure the implementation of their agro-forestry reclamation functions. According to expert estimation, in the course of FPSB reconstruction one can obtain 100-200 solid m³ of low-quality wood per hectare. Taking into account that implementation of the program will take 15-25 years, annual amount of wood residues available for energy is 2.73 mln. t/yr (0.93 Mtce/yr)². In order to estimate the costs of wood chips harvesting during forestry activities in the FPSB, two technologies of wood harvesting have been analyzed: *basic* (using of a disk chipper aggregated with tractor and feed manually, that is widespread in Ukraine) and *intensive* (using of a chipper on a lorry with a manipulator).

Conclusions. Direct costs of the woodchips production for basic technology are 1111 UAH/t, and for intensive technology – 346 UAH/t. It is expedient to consider the purchase of appropriate machines at annual volumes of wood harvesting from 650 tons for basic technology (about 9 hectares of shelterbelts) and 15 thousand tons for intensive technology (about 108 hectares of shelterbelts).

¹ <https://zakon.rada.gov.ua/laws/show/2768-14>

² Tetiana Zheliezna, Anatolii Bashtovyi, Georgii Geletukha Analysis of additional sources of wood fuel in Ukraine. UABio Position Paper №15, 2016. <http://www.uabio.org/img/files/docs/position-paper-uabio-15-en.pdf>