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ASSESSMENT OF ENERGY CONTENT IN THE PHYTOMASS OF TREE OF MAIN FOREST FORMING SPECIES OF UKRAINIAN CARPATHIANS

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Nowadays the energy sphere of Ukraine is functioning with the lack of imported energy sources, part of which has a dominant place in the energy balance of Ukraine. The appearance of this crisis situation must change the state leaders' approach to the issue of forming the energy strategy of the Ukrainian state development. Local energy resources emphasizing the renewable energy sources among which forest resources taking one of the leading places must be put forward. In this context there appears the need to have true normative and reference materials which must become an informative instrument of forest bio energy system of Ukraine. Within this scientific research some normative and reference tables is performed for estimating the total energy intensity of the aboveground live biomass fir, spruce and beech trees that grow in the Ukrainian Carpathians.

The forests of the study's region occupy an area of 2085.6 thousand hectares on which 588.6 million cubic meters of growing stock volume are accumulated. The tree species composition forests of the Carpathian Mountains is characterized by dominance of hardwood species (52.7 %) of which the beech stands cover 67 %. Coniferous tree species cover about 43 % of forested areas. Of this area, spruce and fir forests comprise 75 %. The share of softwood forests in the Ukrainian Carpathians does not exceed 5 % of the total forest area.

As a basis for the research an original and modern technique for collecting and processing experimental data, which, from the perspective of systemic approach and practical application, utilizes advantages of progressive vision on field and laboratory work was used. It is based on successfully combined mensurational and biometric techniques, applied theoretical generalizations are based on statistical and mathematical methods. The main theoretical principles and practical methods of this technique have been successfully tested at the International Institute for Applied Systems Analysis. The technique involves establishing temporary sample plots (TSP), where the research data is collected through felling and fraction-wise processing of model trees (MT). Over the last three decades using the basic principles of this technique 102 TSP were founded, where 661 MT : 279 model trees of spruce, 215 – of Silver fir and 167 – beech.

The components of the table are diameter and height. Here the given normative and reference tables will provide good results only in the given parameters range which is calculated by quantitative taxation data of temporary experiment places: height is from 4 to 32 metres, diameter is from 4 to 44 centimeters.

Suggested normative and reference materials help estimate the total energy

intensity of the aboveground live biomass of fir, spruce and beech trees that grow in the Ukrainian Carpathians and can be used while making a scientific, ecological, forest, technical and economical argumentation of the wide use of forest energy resources of the Carpathian region on the principles of sustainable development.