

**FORM FACTOR PECULIARITIES OF TREE STEMS OF *TILIA*
CORDATA MILL. IN FOREST-STEPPE OF UKRAINE.**

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This work aims to study the patterns of index change of trunks and small-leaved linden nontaperity and to justify the appropriate mathematical models.

The primary research information for the investigation of the linden trunks' nontaperity is represented by the measuring materials of 218 model trees.

Before the development of mathematical model of a form factor the dependence of this index on other trunks indexes was investigated with the help of correlation analysis. It turned out that the index of nontaperity of linden trunks is generally characterized by inverse connection both with height and tree diameter (therefore, pair coefficient of correlation is -0,41 and -0,47 and the multiple one is 0,47). Generally speaking, the specified dependency is rather weak, but it is statistically significant at the 5% level ($r_{\text{крит.}}=0,14$). Therefore, further the established relationships were taken into consideration.

The next step was to determine the difference between the form factors of small-leaved linden trunks, which is growing in different regions, especially in the Western forest-steppe and Dniester-Dnieper forest-steppe forestry districts (according to Hensiruk).

Using Fisher's F-test and Student's T-test, the statistical hypothesis concerning the difference between the trunks nontaperity in different regions was checked. Since the calculated values of F- and T-tests don't exceed the tabular values, at the 5% level of significance it is necessary to reject the hypothesis concerning the difference between both variances and average values of a form factor of linden's trunks in different forestry districts.

When searching for a mathematical model of a form factor of trunks, several equations, predominantly hyperbolic, were used. Equation coefficients were

$$f = 0.525 + (0.4111 - 0.0407d - 0.000418d^2)/h$$

calculated on the PC using the method of least squares. As a result, in the graphical analytical way the following equation was chosen:

On the basis of the developed model of a former factor, a project of tables of trunks' volume depending on their diameter and height was studied. The comparison of the developed standards project with the linden trunk's volume, which lied in the basis of the current assortment tables, showed the presence of minor differences.

Thus, in accordance with the results the parameters of the mathematical model of a former factor depending on the diameter and height were justified. The project of volume tables for the investigated species was studied. The regional features of nontaperity of linden trunks were not found.