

UDC: 630*5.001[4477.46]

EXPERIMENTAL DATA BASE STUDY OF CHERKASSKY ARTIFICIAL PINE STANDS

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In forest mensuration characteristics of forest-tested material to assess the biotic productivity of Cherkassky artificial pine stands, which will give the opportunity to develop adequate mathematical models for components of phytomass tree in artificial pine forests, to build a system of normative and information management major forest inventory and biotic parameters of stands, assess their impact on ecological state of the environment.

Key words: *Cherkassky forest, pine stands, temporary plots, age, density, types of vegetation conditions, productivity class.*

Forest mensuration study any object involves the collection and processing of various sources of information about him. It can consist of literature data and experimental studies carried out directly in the forest. Estimation biotic productivity of forests is carried out by special techniques [3, 4], which provide usually laborious field and laboratory studies with further processing of the results on personal computers using standard packages and applications.

Forests of Cherkassky boron repeatedly been the subject of diverse research [1, 5], but in the published literature no works are highlighting its biological evaluation of artificial pine region and provide a system of normative data information for monitoring the status and dynamics of forest mensuration parameters of these stands .

The purpose of research. To provide temporary plots that representative consumer reflect the most typical conditions growth stands and their basic forest mensuration parameters for further information support the development of standards evaluation and prediction of the dynamics of biotic productivity artificial pine stands Cherkassky boron.

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Research Methodology. When conducting field and laboratory research as a basis has been used technique P.I. Lakyda [3], which focuses on the development of norms for evaluation components phytomass of trees and stands involving packet software application for processing the results of studies on the PC.

Plots were laid in the stands, which were formed in the predominant types of site conditions and there insufficiently ensuring the greatest possible range of age and completeness. The size of the test area was estimate number of trees of the main rocks subject to accounting, which was (at least) in the young - 300 pcs., medieval - 250 pcs., premature and mature stands - 200 pcs. List of trees in the sample conducted by tiers, within tiers for species within the wood distributed by category of technical competence. In case of need for thinning for silvicultural characteristics taken into account separately deadwood and category "harvested parts." When the list of trees observed degrees of thickness: 1 cm - for the average stand diameter to 5.9 cm, 2 cm - from 6.0 to 16.9 cm, 4 cm - more than 16.9 cm.

Selection of model trees (MD) on a temporary test plots (TTP) was performed in accordance with the method of proportional representation stepped by the number of trunks or class method thickness, when the number of felled and measured the MD did not exceed 3.

Quantitative and qualitative parameters of the components of aboveground phytomass MD were assessed according to the method and recorded in special forms targeted for further processing using a PC.

Detailed characterization of forest mensuration research stands was obtained processing output TP (results of inventory and measurement model trees) on PC software PERTA, developed in 1984 by the department forest inventory and forest management NUBiP of Ukraine A. Shvidenko and J. Yuditsky. Calculation of quality indicators phytomass components stem and crown (indicators of density, content completely dry matter, etc.) was performed using applications ZRIZ and PLOT, developed P.I. Lakyda [3].

Studies. According to the chosen methodology as a result of field and laboratory research in the area of research lies 23 TTP felling and processing

qualitative and quantitative components of phytomass 168 model trees. Temporary plots were established in artificial stands of pine in a wide range of types of site conditions Cherkassy boron. According to the records of the forest fund as of 01.01.2011 [2] the most common types of site conditions of the object of research is the pine forests, which occupy more than 53% concealed by forest vegetation of forest plots in second place – mixed oak forests or complex pine forests (over 29%) , the third - oak (about 15%). Pine stand conditions are only 3.2% of the forest vegetation concealed forest plots. To ensure the representativeness of the study laid TTP somehow reflect the typological structure of the investigated stands (Table 1).

Experimental performance data collected pine studied mainly in highly productive plantations (class II growth class and above), but CCI dominate the stands and insufficiently class that objectively reflects the structure of real plants.

1. Distribution of TTP on classes of productivity and dominant types of site conditions (TSC)

TSC	Class of productivity				Total
	I ^a	I	II	III	
A ₁	-	-	-	1	1
A ₂	-	1	-	-	1
B ₁	-	2	1	-	3
B ₂	6	6	4	-	16
C ₂	-	2	-	-	2
Total	6	11	5	1	23

Age structure of artificial pine stands Cherkassy boron as artificial pine in most regions Polissja of Ukraine, characterized by a predominance underbrush and middle-aged stands and limited main logging managed forests. Accordingly conducted selection and laying TTP (Table 2).

2. Distribution of TTP on age classes and productivity

Productivity class	Age class										Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	
I ^a	-	1	-	4	1	-	-	-	-	-	6
I	-	1	4	1	2	1	1	-	-	1	11
II	1	2	-	-	-	-	1	1	-	-	5
III	-	-	-	-	1	-	-	-	-	-	1
Total	1	4	4	5	4	1	2	1	-	1	23

Analysis of the data table. 2 shows that the collected experimental data fairly evenly distributed by major age classes and really reflect the age structure of the investigated stands by age groups (Fig.), which further in modeling mathematical relationships between the major forest mensuration signs trees and stands and phytomass components using regression models ensure their stability and adequacy for all age ranges.

Along with performance and actual age structure is the evaluation of the collected experimental data relative normality. Analysis stands Database PA "Ukrderzhlisproekt", which represents the artificial pine stands Cherkassy boron, shows that their relative completeness is characterized by a wide range from 0.4 to 1.2. This trend towards a significant reduction in the relative completeness plantations with increasing age stands. Under this temporary plots were established based on the latitude range of completeness, however, the most representative of the relative completeness 0.6-0.9 (Table 3).

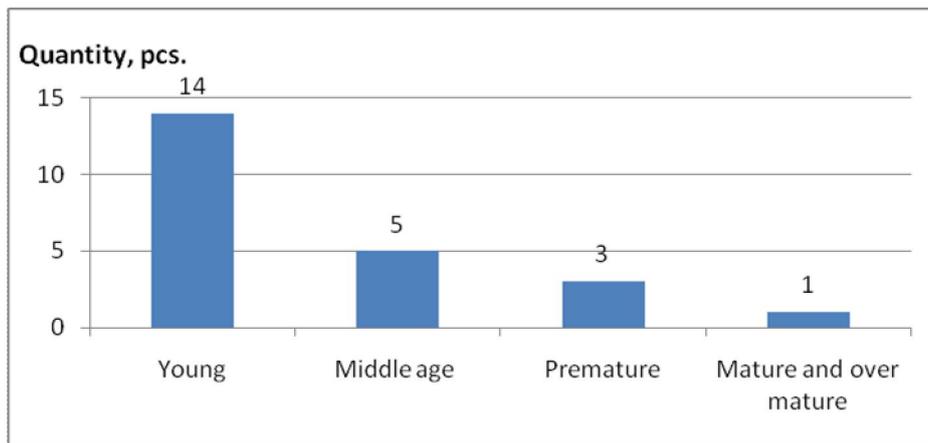


Fig. Distribution of TTP on age groups

3. Distribution of TTP on stand density and age groups

Age group	Density						Total
	0,5	0,6	0,7	0,8	0,9	1,0	
Young	2	2	3	2	4	1	14
Middle age	1	1	1	-	2	-	5
Premature	-	-	-	3	-	-	3
Mature and over mature	-	1	-	-	-	-	1
Total	3	4	4	5	6	1	23

The collected experimental data on the level of temporary plots of model trees and individual components of phytomass accumulated in a computer database after statistical verification allow expeditiously build mathematical models of relationships and interactions that will form the basis of normative knowledge base evaluation of many components biotic productivity of trees and stands of pine, which grow on the territory of the Cherkassy boron.

Conclusions. In general, it should be noted that collected and processed the experimental data available to adequately describe the forests Cherkassy boron artificial pine stands and allow to solve a number of targets set within the work, namely, to develop adequate mathematical models of assessment components phytomass of trees and stands in artificial pine stands Cherkassy boron and their dynamics; build system regulatory information for estimation of basic forest mensuration and biotic parameters stands studied region, to assess the total volume

phytomass in these stands, the deposited carbon in them and their impact on the ecological environment Cherkassy.

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Експериментальна база даних дослідження штучних сосняків

Черкаського бора

Шамрай А.Е.

Приведена лесоводственно-таксационная характеристика опытного материала с оценкой биотической продуктивности штучных сосновых древостоев Черкаського бора, которая даст возможность разработать адекватные математические модели компонентов фитомассы деревьев и древостоев в штучных сосняках, построить систему нормативно-информационного обеспечения основных таксационных и биотических параметров древостоев, оценить их влияние на экологическое состояние окружающей среды.

Ключевые слова: Черкасский бор, сосновые древостои, временные пробные площади, возраст, полнота, типы лесорастительных условий, бонитет.

ЕКСПЕРИМЕНТАЛЬНА БАЗА ДАНИХ ДОСЛІДЖЕННЯ ШТУЧНИХ СОСНЯКІВ ЧЕРКАСЬКОГО БОРУ

Шамрай А.Є.

Наведено лісівничо-таксаційну характеристику дослідного матеріалу з оцінки біотичної продуктивності штучних соснових деревостанів Черкаського бору, яка дозволить розробити адекватні математичні моделі компонентів фітомаси дерев і деревостанів у штучних сосняках, побудувати систему нормативно-інформаційного забезпечення основних таксаційних та біотичних параметрів деревостанів, оцінити їх вплив на екологічний стан довкілля.

Ключові слова: Черкаський бір, соснові деревостани, тимчасові пробні площі, вік, повнота, типи лісорослинних умов, бонітет.