RESEARCHES REGARDING THE VARIATION FACTORS ON TURKEY OAK TRUNK SHAPE QUALITY FROM BOBOSTEA FOREST (BIHOR COUNTY)

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Abstract

The work presents the research results performed at the Turkey oak species, in test surfaces placed in Bobostea forest (Bihor county) and not only (Tasnad Forest District and Dumbrava-Beliu Forest District), which allowed some conclusions about the qualitative and quantitative changes in the qualitative value in these stands.

Key words: wood quality, Turkey oak, Bobostea forest.

INTRODUCTION

The quality of the shape of the tree trunk varies, as a longitudinal cross section (with respect to age of the tree, stand composition, stationary conditions etc.) and cross-section (usually is circular, sometimes approaching the ellipse) is controlled by a number of genetic factors and external factors (asymmetry crown, light unilateral development, space available unidirectional, wind beating a dominant direction, exhibition and slope etc.) (Beldeanu, 2008, 1999).

Particular attention shall be paid to the portion of the trunk located in the first half of the height. This statement is justified for the following reasons: that part volume represents 74.1% of the time zone determined by species (Turkey oak) and shape index ($k_{0.5}$ = 0.608) and in this portion of timber obtained with large diameters values (Giurgiu, Decei, 1997). Quality is an indication the tree trunk shape particularly in areas further use of wood (Bartha, 2012).

MATERIAL AND METHODS

For the purpose to characterize from a qualitative point of view the wood of the Turkey oak trees, within the researched perimeter (Bobostea forest) was placed a number of 14 test surfaces, of variable size (2000-2400 m^2), where measurements and observations were performed at a number of 613 copies of Turkey oak trees. For comparisons, two more test surfaces were placed on Tăşnad Forest District (Satu Mare county), having the size 2000 m^2, where a number of 51 Turkey oak tree exhibits were measured and observed, respectively two test surfaces at Dumbrava-Beliu Forest District

(Arad county), with the size 2000 m^2, where, also, a number of 78 Turkey oak tree exhibits were measured and observed. The total number of copies of Turkey oak tree exhibits measured in the 18 test surfaces was of 742 (see Table 1).

Table 1

The Turkey oak tree samples taken from the assessed stand

No.	Forest District/ Management Unit	Subcom-partment	Station type	Forrest type	Consis-tency	Age (years)	Area (m^2)	Assessed standing timber
1	1	**3D**	6143	7432	0.9	70	2200	30
2	1	**5A**	6143	7432	0.9	70	2000	47
3	1	**6C**	6143	7432	0.8	70	2000	45
4	1	**8D**	6143	7432	0.8	80	2000	43
5	1	**34B**	6142	7411	0.8	75	2000	46
6	1	**55C**	6153	7513	0.6	100	2400	30
7	1	**69B**	6143	7432	0.8	75	2000	50
8	1	**77B**	6143	7432	0.8	100	2000	46
9	1	**83A**	6143	7432	0.8	105	2000	58
10	1	**87A**	6143	7432	0.7	100	2000	46
11	1	**87C**	6143	7432	0.8	90	2000	44
12	1	**87D**	6143	7432	0.6	90	2200	30
13	2	**124A**	8321	7421	0.8	85	2000	51
14	2	**128A**	8321	7421	0.8	80	2000	47
15	3	**9A**	6143	7111	0.8	85	2000	40
16	3	**16B**	6142	7112	0.7	135	2000	38
17	4	**62A**	6143	7412	0.7	130	2000	30
18	4	**72C**	6143	7412	0.5	120	2000	21
Grand total		**-**					**36800**	**742**

Remark for Forest district/Management Unit: 1-Sfânta Maria Forest District/VII Boboştea Management Unit; 2-Oradea Forest District/VIII Mihiş Management Unit; 3-Dumbrava Forest District/I Beliu Management Unit; 4-Tăşnad Forest District/V Supur Management Unit;

In order to characterize the standing trees were drawn and completed form for all trees identified (Dinulică, 2009). 40 sheets contain a number of qualitative and quantitative characters in each tree of those listed. To characterize variables (alternative and discrete) were adopted scale of values (Bartha, 2011). The list of characters includes (listed on the shape the trunk):

1. *the trunk shape (fig. 1)*:

1a shape - straight cylindrical wood, defectless,
1b shape - straight cylindrical wood, with other defects,
2a shape - straight, slightly curved without other defects,
2b shape - straight, slightly curved, with other defects,
3a shape - sinuous wood, curved without other defects,
3b shape - sinuous wood, curved with other defects.

The office works were represented by the processing and interpretation of data gathered from the field, these were centralized on biological origins and categories of diameters. Mathematical processing of data was performed in STATISTICA software version 8 and Excel, and some methods have been described in (Bica A.M. ... 2006).

1a) Shape-straight cylindrical wood, defectless (87C subcompartment, the VII Boboştea M.U.)

1b) Shape-straight cylindrical wood, with other defects (87D subcompartment, the VII Boboştea M.U.)

2a) Shape-straight, slightly curved without other defects (77B subcompartment, the VII Boboştea M.U.)

2b) Shape-straight, slightly curved, with other defects (83A subcompartment, the VII Boboştea M.U.)

3a) Shape-sinuous wood, curved without other defects (124A subcompartment, the VIII Mihiş M.U.)

3b) Shape-sinuous wood, curved with other defects (128A subcompartment, the VIII Mihiş M.U.)

Fig. 1. The trunk shape typology on the assessed Turkey oak trees

RESULTS AND DISCUSSION

Histograms in figure 2, allowed to issue the following findings regarding the quality variation shape of the trunk in the 18 surveys in the study area.

Shapes **1a**, **2a**, with the most valuable wood, there are relatively small in size (a possible explanation could be that has been taken over time during the execution of cultural operations) compared to the other forms identified.

The greatest proportion, however, is as **1b** (straight cylindrical wood, with other defects), the polling 4, 6, 7, 9, 11, 13, 14, 15, 16, 17, 18. Shape **2b** (straight, slightly curved, with other defects) occurs in four most frequent surveys (surveys 3, 5, 8 and 10).

3a and **3b** of the shapes, the timber less important from the point of view of the quality of the shape of the trunk, the form **3a**, or is absent (surveys 3, 6, 8, 11, 12, 13, 14, 16, 18) or is in very low proportions (surveys 1, 4, 5, 7, 9, 10, 15 and 17).

Shape **3b** appears in 16 surveys (variable frequency from a survey to another) and is absent in the two surveys (surveys 8 and 18).

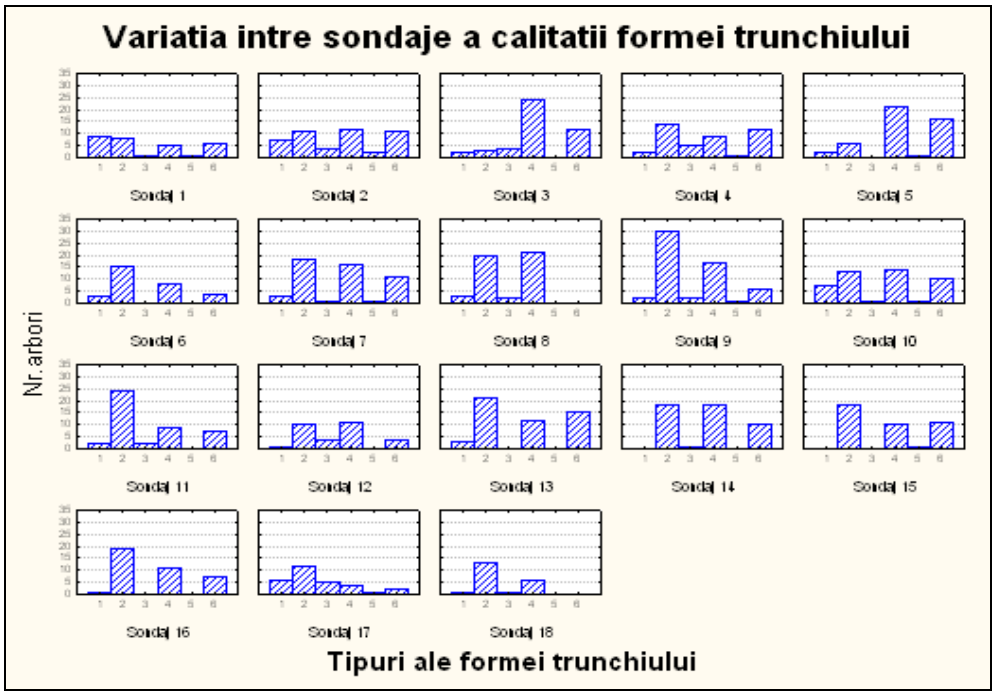

Fig. 2. Variation among surveys of trunk form quality, 1-1a shape-straight cylindrical wood, defectless; 2-1b shape- straight cylindrical wood, with other defects; 3-2a-shape straight, slightly curved without other defects; 4-2b shape-straight, slightly curved, with other defects; 5-3a shape-sinuous wood, curved without other defect; 6-3b shape-sinuous wood, curved with other defects; Survey 1=3D subcompartment, the VII Boboştea M.U.; Survey 2=5A subcompartment, the VII Boboştea M.U.; Survey 3=6C subcompartment, the VII Boboştea M.U; Survey 4=8D subcompartment, the VII Boboştea M.U; Survey 5=34B subcompartment, the VII Boboştea M.U; Survey 6=55C subcompartment, the VII Boboştea M.U; Survey 7=69B subcompartment, the VII Boboştea M.U; Survey 8=77B subcompartment, the VII Boboştea M.U; Survey 9=83A subcompartment, the VII Boboştea M.U; Survey 10=87A subcompartment, the VII Boboştea M.U; Survey 11=87C subcompartment, the VII Boboştea M.U; Survey 12=87D subcompartment, the VII Boboştea M.U; Survey 13=124A subcompartment, the VIII Mihiş M.U.; Survey 14=128A subcompartment, the VIII Mihiş M.U.; Survey 15=9A subcompartment, the I Beliu M.U.; Survey 16=16B subcompartment, the I Beliu M.U.; Survey 17=62A subcompartment, the V Supur M.U.; Survey 18=72C subcompartment, the V Supur M.U.

CONCLUSIONS

It can be concluded that, in terms of quality tree trunk form of Turkey oak trees in the investigated area, dominated specimens showing different curves associated with visible defects (frost cracks, exterior rot, excrescences, knots, epicornic branches), and reduce the possibilities require recovery of wood assortments as valuable.

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