ASPECTS CONCERNING THE PRESENCE AND THE GRAVITY OF THE FOREST-CRACK ON *QUERCUS CERRIS* (THE TURKEY OAK) SPECIES IN THE FOREST STANDS AS PART OF TINCA FORESTRY DISTRICT

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Abstract

The purpose of this work is to emphasize the frost-crack's presence and the gravity of this deficiency in the Turkey oak forest situated in the framework of Tinca Forestry District.

Key words: the wood defects, Turkey oak tree, frost-crack

INTRODUCTION

The wood defects are deviations from the trunk shape, structure, the tissues integrity and its chemical composition, such as some structural elements (the knots, the heart), which modify its features affecting its quality thus the conversion and practical utilisation possibilities are limited.

The defects can occur on the standing tree and after the falling to the final products.

The wood is sorted qualitatively regarding the piece size and defects.

The frost-crack is a wood structure defect, a longitudinal and elicoidal crack, which occur on trees during winter due to the frost (the water inside the wood freezes, increases its volume and the wood cracks).

Fig. 1 The aspect of a frost-crack on a standing tree

Fig. 2 The aspect of a frost-crack on a Turkey oak timber

The frost-crack can either be closed (the crack doesn't reach the edge of the trunk transversal section) or opened (visible at the exteriro side) and generally presents crest-shaped swellings on the exterior sides.

The purpose of this work is to emphasize the frost-crack's presence and the gravity of this deficiency in the Turkey oak forest situated in the framework of Tinca Forestry District.

MATERIAL AND METHODS

The measurments aimed at The Turkey oak stands (*Quercus cerris*), found on two different forestry sites (9337-Podzolled Plain Forest (levigated) pseudogleyed Pm respectively 8331-Profound Podzolled Plain Forest (II-I)).

The comportaments, subcompartments and the placement was done at random, the measurments sample plot were effected in the 8th comportment from U.P. II Sititelec and 3A subcompartment from U.P. IV Topile.

There are two equal square-shaped sample plots, each of 2500 m^2 area.

There were diameter measurments in these two sample plots, extra datum were picked up concerning the frost-crack presence, the length and its position on the trunk such as its orientation regarding the cardinal points at Turkey oak trees (*Quercus cerris*).

RESULTS AND DISCUSSION

The frost-crack presence on the assessed Turkey oak trees such as its features (length, position on the trunk, exposition) are rendered in the folowing table:

Table 1

Measurments and observations picked up at u.a. 3A (U.P. IV Topile)

Crt. no	Species	Diameter (cm)	Origin	Frost-crack		
				Length (m)	The position on the trunk	Exposition
1	Turkey oak tree	30	Seed	2	inferior	NE
2	Turkey oak tree	24	Seed	1	inferior	NE
3	Turkey oak tree	28	Seed	2	inferior	SV
4	Turkey oak tree	26	Seed	6	inferior	V
5	Turkey oak tree	38	Sprout	3	inferior	SV
6	Turkey oak tree	28	Seed	1; 1.5	inferior	S; E
7	Turkey oak tree	24	Seed	1.5	inferior	SV
8	Turkey oak tree	28	Seed	1; 4	inferior	V; E
9	Turkey oak tree	30	Seed	4	inferior	E
10	Turkey oak tree	30	Seed	1.5; 5	inferior	SV; S
11	Turkey oak tree	24	Seed	3	inferior	V
12	Turkey oak tree	24	Seed	6	inferior	V
13	Turkey oak tree	18	Seed	2	inferior	V
14	Turkey oak tree	24	Seed	5	inferior	SV
15	Turkey oak tree	24	Seed	3	inferior	NV
16	Turkey oak tree	40	Sprout	3; 1	inferior	V; NV
17	Turkey oak tree	38	Sprout	1	inferior	NE
18	Turkey oak tree	18	Seed	1	inferior	NE
19	Turkey oak tree	20	Seed	5	inferior	NE
20	Turkey oak tree	22	Seed	1	inferior	S
21	Turkey oak tree	26	Seed	4	inferior	V
22	Turkey oak tree	28	Seed	1	inferior	S
23	Turkey oak tree	24	Seed	1.5	inferior	SV

Table 2

Measurments and observations picked up at u.a. 8 (U.P. II Sititelec)

Crt. no	Species	Diameter (cm)	Origin	Frost-crack		
				Length (m)	The position on the trunk	Exposition
1	Turkey oak tree	26	Sprout	3;1	inferior	V;SE
2	Turkey oak tree	26	Sprout	3	inferior	SE
3	Turkey oak tree	26	Sprout	4	inferior	S
4	Turkey oak tree	24	Sprout	3; 1.5	inferior	NE; N
5	Turkey oak tree	22	Sprout	3	middle	NV
6	Turkey oak tree	24	Sprout	1	inferior	SV
7	Turkey oak tree	24	Sprout	1	inferior	NE
8	Turkey oak tree	24	Sprout	1; 1.5; 1	inferior	SV; N; V
9	Turkey oak tree	26	Sprout	1; 3	inferior	V; NV
10	Turkey oak tree	16	Sprout	1.5	inferior	S
11	Turkey oak tree	28	Sprout	3	inferior	N
12	Turkey oak tree	28	Sprout	2	inferior	SV
13	Turkey oak tree	34	Sprout	2; 3	inf; middle	V; V
14	Turkey oak tree	30	Sprout	3.5	inferior	V
15	Turkey oak tree	30	Sprout	1	inferior	E
16	Turkey oak tree	30	Sprout	5	inferior	SE
17	Turkey oak tree	20	Sprout	1.5	inferior	E
18	Turkey oak tree	32	Sprout	1.5	inferior	SV
19	Turkey oak tree	32	Sprout	1; 1	inferior	SV; NE
20	Turkey oak tree	26	Sprout	1.5	inferior	V
21	Turkey oak tree	32	Sprout	1	inferior	NE
22	Turkey oak tree	28	Sprout	1	inferior	V
23	Turkey oak tree	18	Sprout	1.5	inferior	V
24	Turkey oak tree	32	Sprout	1.5	inferior	SV
25	Turkey oak tree	28	Sprout	3	inferior	S
26	Turkey oak tree	32	Sprout	1.5	inferior	N
27	Turkey oak tree	30	Sprout	2	inferior	SE
28	Turkey oak tree	40	Seed	1.5; 1	inferior	E; S
29	Turkey oak tree	18	Seed	4	inferior	V
30	Turkey oak tree	30	Seed	5	inferior	V
31	Turkey oak tree	30	Sprout	1; 1	inferior	E; V
32	Turkey oak tree	28	Sprout	2.5	inferior	S

The results which are presented beneath were analised using the datum picked up in the field.

135 Turkey oak trees in u.a 8 and 115 in u.a. 3A, 32 Turkey oak trees, respectively 23 Turkey oak trees were affected by the frost-crack, i.e. 24%, respectively 20%out of the total assessed trees on the sample plots.

Taking origin into account, the most affected samples are 58% spronts proceeded from and 42% seed proceeded from, we can say that the frost-crack appearance on the Turkey oak trees is not significantly influenced by the origin.

The position of the frost-crack on the trunks was inferior (placed on the one third inferior part of the trunk), on the foot timber, excepting two cases in which it appeard in the middle (or when it was medium placed) of the trunk.

The situation regarding the frost-crack orientation concerning the cardinal points is shown in the table below:

Table 3

The frost-crack orientation concerning the cardinal points in u.a. 8 (U.P. II Sititelec)

Cardinal points	NV	N	NE	SV	S	SE	V	E
%	6	11	8	16	13	6	32	8

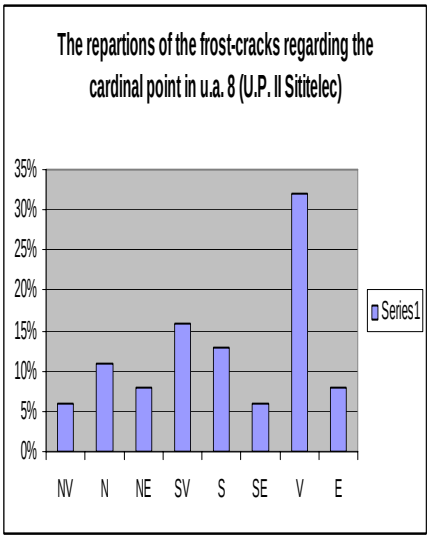

Fig. 3 The repartions of the frost-crack's regarding the cardinal points in u.a. 8

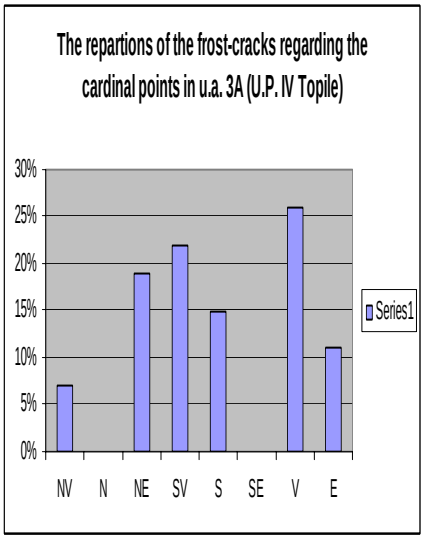

Fig. 4 The repartions of the frost-crack's regarding the cardinal points in u.a. 3A

Table 4

The frost-crack orientation concerning the cardinal points in u.a. 3A (U.P. IV Topile)

Cardinal points	NV	N	NE	SV	S	SE	V	E
%	7	-	19	22	15	-	26	11

Analising the charts above it comes out that the frost-crack's exposition concerning the main cardinal points, the western (32% and 26%) and south-western (16% and 22%) on both sample plots are the most frequent.

The lengths of the two sample plot's frost-crack's are rendered in the folowing tables:

Table 5

The length of the frost-cracks measured at u.a. 8 (U.P. II Sititelec)

Length (m)	**1**	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**
%	27	24	8	3	22	5	3	-	5

Table 6

The length of the frost-cracks measured at u.a. 3A (U.P. IV Topile)

Length (m)	**1**	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**
%	30	15	11	-	15	-	11	11	7

The 1 m and 1.5 m long frost-cracks are the most frequents.

CONCLUSIONS

Some aspects regarding the frost-crack's presence and the gravity of this deficiency which affects the Turkey oak stands part of Tinca Forestry District can be drawn out by analizing the two sample plots.

The Turkey oak stands are highly affected (24%, respectively 20% from the total assessed trees), specially the spronted trees (58%), folowed by those of seeds (42%) with a 1 m or 1.5 m long frost-cracks (the most frequent length), placed on the one third inferior part of the trees (the foot timber part).

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