LEGAL ISSUES REGARDING LABOR-RELATED REQUIREMENTS FOR WOOD EXPLOITATION

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Abstract

The paper presents some legislative aspects on the certification of the exploitation companies and the conditions that they must fulfil regarding the labour force and provision with specialised personnel. Within the planning of the exploitation operations, the importance of knowing/establishing the number of workers necessary for the exploitation of a coupe is presented, so that the economic agent could comply with the agreed exploitation period and be able to organize its exploitation activities as well as possible. As a case study, ten exploitation coupes have been chosen that are programmed for 2016 (two coupes for each accessibility grade), with a gross volume of about 1000mc/coupe. The time on exploitation activities as well as the minimum number of workers according to the exploitation period has been determined. The exploitation period is the factor that influences the most the necessary number of workers, altogether with the volume to be exploited, the number of available equipment, accessibility grade, working conditions, etc.

Key words: exploitation period, time norms, exploitation certificate, flow time, forest workers, exploitation coupes

INTRODUCTION

In the Forest Code, art. 62, paragraph 2, it is foreseen that "the exploitation of timber is made only by economic agents certified by the Certification Commission that functions within the employers and professional association from the forestry field that is acknowledged at a national level".

According to Order no. 1330/2015, art. 12, the documents that an economic agent submits at the secretariat of the Certification Commission, as it follows: "certification/re-certification request..., declaration on one's own account of the legal representative of the economic agent or its assignee, from which to result that the submitted documents for achieving the certificate are according to the original, the situation regarding the specialized personnel..., copy of the individual labour contract recorded in the registry of the respective economic operator and a copy of the register from which the employment of the specialised personnel results, a copy of the graduation/Bachelor degree diplomas of the specialised personnel for the technical coordination of the exploitation activity".

The number of workers necessary for the exploitation of a coupe must be known when planning and organizing the wood exploitation activities.

There are distinguished two big groups of workers: qualified and unqualified. The qualified workers are divided into 8 salary categories (e.g. category 8 corresponds to the mechanical trimmers (cableway skidder operators; category 6 – tractor drivers; category 4- jointing and cant-hook workers) and for the unqualified workers there are 3 categories according to the specificity of activities (common, difficult and very difficult). Lately, these categories were modified (twice in 2016) by notifications from the National Forest Administration – Romsilva, within the context of applying GD no. 1017/2015 – settling the minimum gross basic salary that is nationally guaranteed. Thus, it was established that starting with the 1st of May 2016, the minimum gross basic salary is 1250 lei/month for a complete working programme of 169,333 hours on average per month, in year 2016, representing 7,382 lei/hour.

The time norms used frequently in the wood exploitation works (Ciubotaru, 1996; Horodnic, 2003; Oprea, Sbera, 2004) foresee:

- Working team (members and qualification);
- Content of the norm for each member of the working team.

It is very important to determine the minimum number of workers and the members of the exploitation team for each coupe. The bigger the exploitation company, the most precise the way to determine the minimum and optimum number of workers (and equipment) for each coupe, respectively a calendar chart for the development of works both as regards the future exploitation coupes and the most accurate estimation of the time (in hours and days) necessary for each operation/activity within a coupe. In any case must meet the requirements of Technical Regulations 3 and 4.

According to Order 1540/2011, the delivery of coupe will be done on the day agreed in the exploitation authorisation, or in the last day of the foreseen period.

The number of necessary workers also depends on a series of factors: direct factors (physical-chemical factors; physical-geographical factors, silvo-technical factors) and indirect factors. We mention among them: exploitation method and technology, structure of the exploitation process, range of machines and number of equipments (harness), approved period and duration of the exploitation, area of coupe, total volume, volume of average tree, group of species, land conditions, collecting/handling distances (Timofte et al., 2015), accessibility grades (Ciubotaru et al., 2012; Timofte et al., 2016), etc.

Because among the wood exploitation activities there must be partial overlapping as regards the period of development, as some of the workers may take part in different operations, the number of the equipment may be supplemented if the agreed period of time is insufficient, or if it is needed as

the exploitation to end in a shorter period of time (Ciubotaru, 1996; Timofte, 2008).

MATERIAL AND METHOD

As a case study, ten coupes (Table 1) have been chosen, with main products put up to auction at the beginning of 2016 by Bihor Forest Department, with two coupes in each degree of accessibility. The gross volume of these coupes is about 1000 mc/coupe.

Table 1

Situation of coupes under study

Grade of accessibility	Coupe No.	Forest District	Maximum admitted period**, in months	Volume to be exploited, mc	Number of marked trees
G1*	6	Beiuş	5,5	918	756
	468	Beiuş	4	1027	714
G2	211	Sudrigiu	5,5	1183	885
	226	Sudrigiu	4	917	631
G3	593	Dobreşti	4	835	1492
	183	Sudrigiu	4	862	673
G4	179	Sudrigiu	5,5	1099	612
	212	Sudrigiu	5,5	1079	1044
G5	467	Beiuş	5,5	1089	500
	235	Dobreşti	5,5	1197	411

* Gi is the accessibility grade;
** according to Order 1540/2011

Based on the time norms (NT) for each situation and volume V which is used for the respective category of works, on working operations, the time (FT) necessary for each operation or activities has been achieved:

FT = NT x V, in hours

In table 2, the results obtained on technological processes and activities that are developed by the help of moto-saws and tractors are summarised.

Generally, the number of workers (m) is established with the simplified relation (Ciubotaru, 1996):

$$m = \frac{FT}{8 \cdot Na},$$

where Na represents the number of active days out of the approved exploitation period.

Furthermore, according to annex 2 in the Order 1540, the exploitation period is of 4 months (coupes with restrictions, volume to be exploited of about 1000 mc).

Na = 4 months x 21 working days/month = 84 active days

Table 2

Time fond resulted for the 10 coupes under study

Coupe No.	Time (in hours) necessary for the process of ...			Time (in hours) necessary for the execution of the operations with...	
	Harvesting	Collecting	Trimming-topping-bucking and primary sorting	Moto-saw	Forest tractor
6	374	494	936	488	538
468	420	492	957	535	601
211	486	640	1124	621	697
226	407	502	884	513	543
593	532	589	993	655	667
183	351	566	887	458	604
179	345	816	1077	475	884
212	515	624	931	626	711
467	347	864	1072	477	966
235	265	972	1112	393	1064

In table 3, the number of workers on activity groups was determined (calculated workers). A coefficient of 1.25 was applied in the calculi (only in 80% of the total time a certain operation can be performed, being necessary other operations (before and after) according to the adopted exploitation technology). The obtained value increased up to the first integer number, resulting into the "adopted number of workers" from the table 3.

Table 3

Determination of the number of workers necessary for an exploitation period of 4 months, winch skidding on an average distance of >50m

Coupe No.	Calculated/adopted number of workers for the activities...					Total no. of workers
	Felling, trimming, converting by moto-saw	Collecting, hauling, handling by TAF	Hand piled and rolled up round wood	Coupe cleaning	Wood stacking into cords	
6	0,91/2	1,00/2	0,45/2	0,25/1	0,12/1	8
468	1,00/2	1,12/2	0,51/2	0,18/1	0,11/1	8
211	1,16/2	1,30/2	0,59/2	0,68/1	0,12/1	8
226	0,95/2	1,01/2	0,46/2	0,49/1	0,09/1	8
593	1,22/2	1,24/2	0,54/2	0,24/1	0,40/1	8
183	0,85/2	1,12/2	0,42/2	0,39/1	0,10/1	8
179	0,88/2	1,64/2	0,54/2	0,39/1	0,12/1	8
212	1,16/2	1,32/2	0,55/2	0,21/1	0,09/1	8
467	0,89/2	1,80/2	0,54/2	0,39/1	0,12/1	8
235	0,73/2	1,98/2	0,59/2	0,14/1	0,07/1	8

Table 4

Determination of the minimum number of workers (trimmers, tractor drivers, total) according to the agreed exploitation period (1-4 months) for the 10 coupes under study, winch skidding >50 m

		Coupe No.									
		6	468	211	226	593	183	179	212	467	235
MINIMUM number of de WORKERS for D=4*	Trimmers	1	1	1	1	1	1	1	1	1	1
	Tractor drivers	1	1	1	1	1	1	1	1	1	1
	TOTAL	8	8	8	8	8	8	8	8	8	8
MINIMUM number of de WORKERS for D=3*	Trimmers	1	1	1	1	1	1	1	1	1	1
	Tractor drivers	1	1	1	1	1	1	2	1	2	2
	TOTAL	8	8	8	8	8	8	10	8	10	10
MINIMUM number of de WORKERS for D=3*	Trimmers	1	1	2	1	2	1	2	1	1	1
	Tractor drivers	2	2	2	2	2	2	2	2	2	2
	TOTAL	10	10	13	10	12	10	10	12	10	10
MINIMUM number of de WORKERS for D=1*	Trimmers	2	2	3	2	3	2	2	3	2	2
	Tractor drivers	3	3	3	3	3	3	4	3	4	4
	TOTAL	15	16	20	15	19	15	19	18	19	18

* D = duration of exploitation, in months

Table 5

Determination of the time for coupe P6, winch skidding >50m, D=4 months, G1, winch skidding and/or harness

Collecting mode		Average collecting distance with harnesses, in m	Necessary time, in hours		
Collected by winch >50m, % of coupe area	Collected by harness, % of coupe area		For the wood collecting process	For tractors	For harness
100	0	-	494	538	0
80	20	1-100	591	538	83
		101-200	670	497	108
60	40	1-100	702	497	166
		101-200	860	471	217
40	60	1-100	827	471	249
		101-200	1064	459	325
20	80	1-100	967	459	332
		101-200	1283	462	434
0	100	1-100	1121	462	415
		101-200	1516	478	542

For each coupe, the number of harnesses and jointers (workers) can also be established (if necessary). As an example, the first coupe (accessibility grade=1) and the last one (grade of accessibility=5) have been chosen out of the ten coupes under study. Thus, the time, for different ratios from the coupe area, was determined that could be exploited by using harnesses within the gathering operation, to the detriment of collecting by the winch on the tractor.

Table 6

Determination of the minimum number of workers (trimmers, tractor drivers, jointers) according to the approved exploitation period (1-4 months) for coupe P6, pulled by winch >50m and/or harness, D=1...4 months, G1

Collecting mode		Average collecting distance with harness, in m	Minimum number of workers for an exploitation period of...															
			4 months				3 months				2 months				One month			
Pulled by winch >50m, % of the coupe area	Harness collecting, % of the coupe area		Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total
100	0	-	1	1	0	8	1	1	0	8	1	2	0	10	2	3	0	14
80	20	1-100	1	1	1	9	1	1	1	9	1	1	1	9	2	2	1	13
		101-200	1	1	1	9	1	1	1	9	1	1	1	9	2	2	1	13
60	40	1-100	1	1	1	9	1	1	1	9	1	1	1	9	2	2	2	14
		101-200	1	1	1	9	1	1	1	9	1	1	1	9	2	2	2	14
40	60	1-100	1	1	1	9	1	1	1	9	1	1	1	9	2	2	2	14
		101-200	1	1	1	9	1	1	1	9	1	1	2	10	2	2	3	15
20	80	1-100	1	1	1	9	1	1	1	9	1	1	2	10	2	2	3	15
		101-200	1	1	1	9	1	1	2	10	1	1	2	10	2	2	4	16
0	100	1-100	1	1	1	9	1	1	2	10	1	1	2	10	2	2	4	16
		101-200	1	1	2	10	1	1	2	10	1	1	3	11	2	2	5	17

It was acted similarly for the determination of the number of workers for coupe P235, having the accessibility grade G5, the achieved results being presented in table 7.

Table 7

Determination of the minimum number of workers (trimmers, tractor drivers, jointers, total) according to the approved exploitation duration (1-4 months) for coupe P235, winch skidding >50m and/or harnesses, D=1...4 months, G5

Collecting mode		Average collecting distance with harness, in m	MINIMUM number of WORKERS For an exploitation period of...															
			4 months				3 months				2 months				One month			
Pulled by winch >50m, % of the coupe area	Harness collecting, % of the coupe area		Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total	Trimmers	Tractor drivers	Jointers for harnesses	Total
100	0	-	1	1	0	8	1	2	0	10	1	2	0	10	2	4	0	16
80	20	1-100	1	1	1	9	1	2	1	11	1	1	1	11	2	4	1	17
		101-200	1	1	1	9	1	2	1	11	1	1	1	11	2	4	2	18
60	40	1-100	1	1	1	9	1	2	1	11	1	1	1	11	2	4	2	18
		101-200	1	1	1	9	1	2	1	11	1	1	2	12	2	4	3	19
40	60	1-100	1	1	1	9	1	2	1	11	1	1	2	12	2	4	3	19
		101-200	1	1	1	9	1	2	2	12	1	1	2	12	2	4	4	20
20	80	1-100	1	1	1	9	1	2	2	12	1	1	2	12	2	4	4	20
		101-200	1	1	2	10	1	2	2	12	1	1	3	13	2	4	5	21
0	100	1-100	1	1	2	10	1	2	2	12	1	1	3	13	2	4	5	21
		101-200	1	1	2	10	1	2	2	12	1	1	3	13	2	4	6	22

RESULTS AND DISCUSSION

The number of workers is directly influenced by the exploitation period D. If D decreases from 4 months to 3,2, respectively one month, for the 10 coupes under study, the situation is presented in the figure 1.

It is noticed that the collecting mode influences significantly the number of workers: from 8 to 13 workers for a very easily accessible coupe, and from 10 to 22 workers for a very difficult accessible coupe (coupe P235 – Fig. 2).

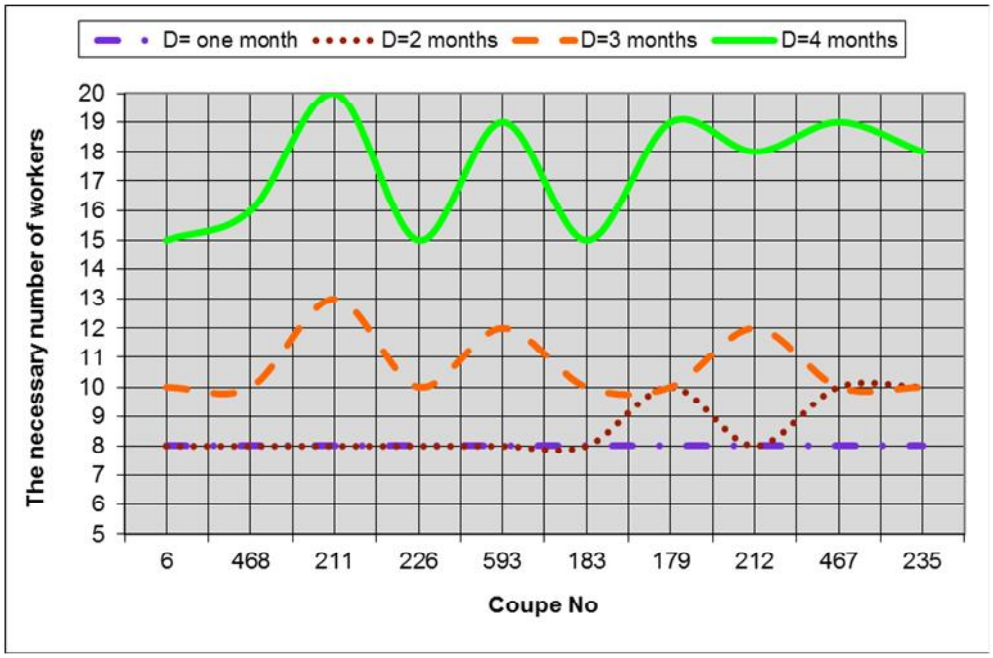

Fig. 1. Representation of the necessary number of workers according to the agreed exploitation period for the ten coupes under study

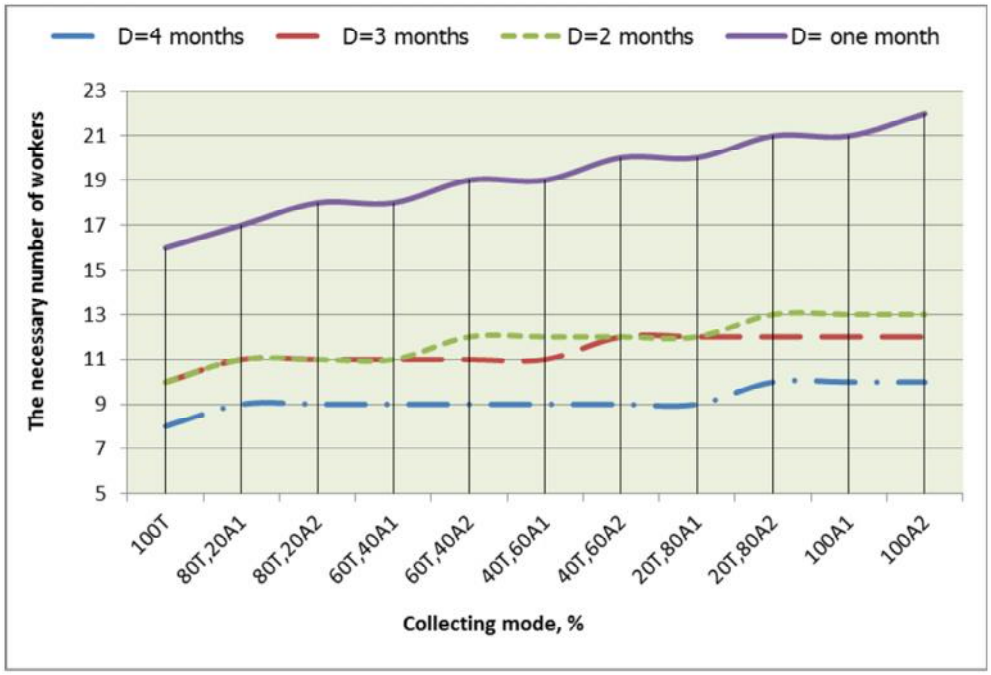

Fig. 2. Representation of the minimum number of workers necessary for the coupe 235 exploitation, for an agreed period D=1...4 months, by winch collection 100% (symbol 100T), with harnesses (symbol A1 for an average distance of 1-100m, or A2 for 101-200m), or by both ways: by winch and harnesses (symbol 80T, 20 A1 for 80% winch collection and 20% harness collection)

CONCLUSIONS

As it can be noticed in table 6, for the coupes with low accessibility grade (e.g. coupe 6), for a longer exploitation period (4 months), the number of harnesses, respectively of jointers and carers increases from 0 to 2 according to the ratio that the harness have of the total collection operation. For a very short agreed period (one month in this case), the number of harness jointers increases from 0 to 5 workers according to the ratio of the collecting operation with harnesses.

As normal, the accessibility grade doesn't influence the number of workers from the collecting operations. For the coupes found far away from the permanent transport paths, it is noticed in table 7 that the number of jointers for harnesses is similar with that from the coupes with low accessibility grade, but the total number of tractor drivers and workers is significantly higher, increasing with 7-9 workers due to the long collecting distance.

To have a small or medium number of workers, it is recommended an exploitation period of 3 months for the coupes with gross volumes of about 1000mc. It is also recommended to avoid the period of 2 months and to forbid the duration of one month which would lead to a great number of workers, a high risk of accidents and damages. These could be avoided by an optimum planning of exploitation and the increase of the mechanisation degree.

The working procedure and the accomplished programme can be used for any coupe, and the economic agent can estimate the number of workers necessary for a certain coupe, according to the agreed/wished period, thus the works in different coupes simultaneously with well-configured and optimised teams could be possible. If the economic agent intends to finish faster the operations in a coupe, it can supplement the number of workers (and equipment/harness) for some certain operations.

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