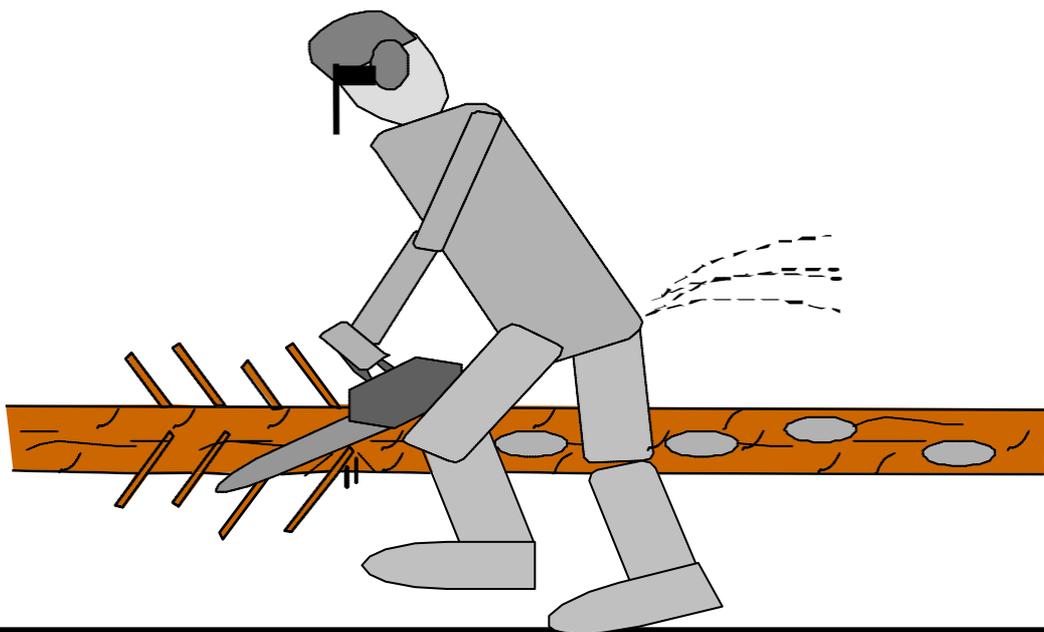


Set of Rules

European Students

CHAMPIONSHIPS

In Forestry Skills



Version: 2017, October

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I ORGANIZATION OF THE ESCFS

1 Basic Regulations

1.1 General

1.1.1 Goal of the European championships for students

Short-term goal of the competition is the presentation of the latest achievements in logging techniques, logging machinery tools and logger's safety equipment and a comparison of these at an international level in theory and practice.

Students between 16 – 25 years of age, who are in forestry training, take part 2 times (see point 1.2.5). This Competition is a team competition between schools in Europe.

In planning and carrying out the competitions, special attention is paid to safety aspects in working techniques. Long-term aim of the competitions is to increase the appreciation of forest work and to draw general attention to forestry training and the forestry industry on both a national and international level. These competitions play a particularly significant role in creating international contacts between students and schools, which contribute to the furthering peaceful coexistence between nations.

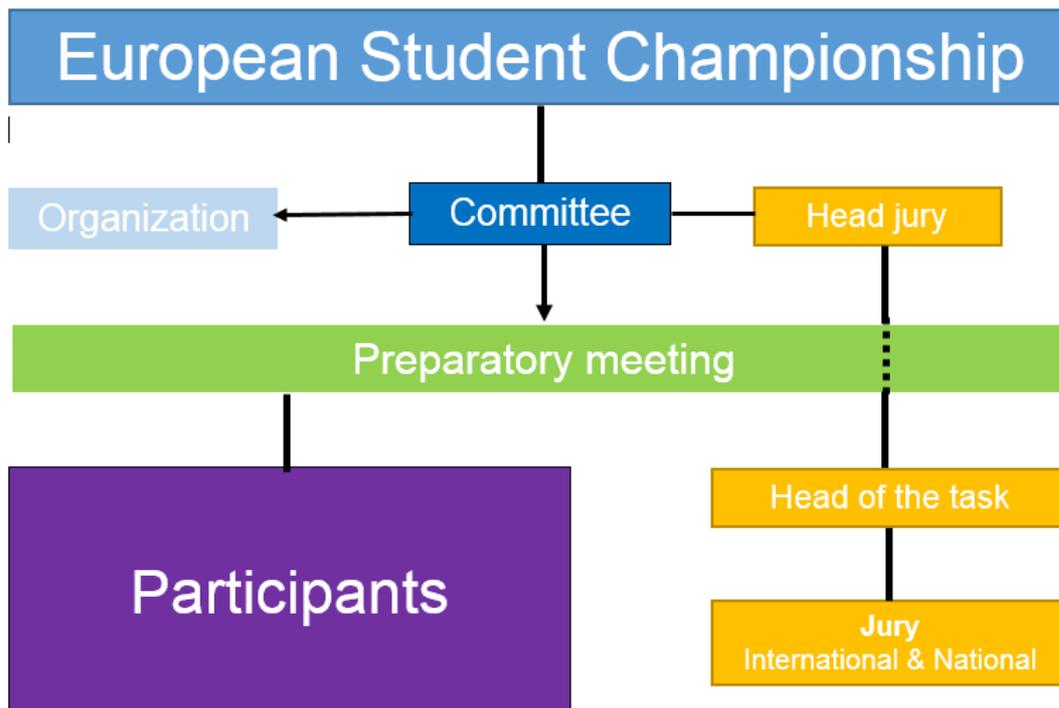
1.1.2 History of European Student Championship of Forestry skills

The list of countries that have arranged competitions and the winner are as follows:

#	Year	Organizing country	1 st place	2 nd place	3 rd place
1.	2002	Austria	1 st Austria	2 nd Finland	3 rd Lithuania
2.	2003	Finland	1 st Estonia	2 nd Finland	3 rd Austria
3.	2004	Estonia	1 st Estonia	2 nd Slovenia	3 rd Austria
4.	2005	Lithuania	1 st Austria	2 nd Germany	3 rd Slovenia
5.	2006	Austria	1 st Austria	2 nd Slovenia	3 rd Germany
6.	2007	Belgium	1 st Austria	2 nd Italy	3 rd Lithuania
7.	2008	Norway	1 st Slovenia	2 nd Austria	3 rd Germany
8.	2009	Germany	1 st Austria	2 nd Slovenia	3 rd Poland
9.	2010	Luxemburg	1 st Austria	2 nd Slovenia	3 rd Estonia
10.	2011	Poland	1 st Austria	2 nd Germany	3 rd Poland
11.	2012	Slovenia	1 st Slovenia	2 nd Austria	3 rd Norway
12.	2013	Austria	1 st Slovenia	2 nd Austria	3 rd Italy
13.	2014	Italy	1 st Austria	2 nd Italy	3 rd Slovenia
14.	2015	Estonia	1 st Germany	2 nd Estonia	3 rd Italy
15.	2016	Austria	1 st Austria	2 nd Slovenia	3 rd Italy
16.	2017	Switzerland	1 st Austria	2 nd Switzerland	3 rd Romania
17.	2018	Hungary			
18.	2019	Sweden			
19.	2020	Romania			

Table 1 organizing countries and results

1.2 Basic Regulations for the arrangement of the championships



1.2.1 The committee and the head jury

The committee consists of members of representatives of participating countries

- Markus Wilfinger (Austria)
- Peter Tretter (Germany)
- Petra Prelc (Slovenia)

The head jury consists of members of the committee, participating schools or companies, completed with a member from the organizing country and from the country which organizes the next competition. For 2017:

- Beat Philipp (Switzerland)
- Someone for Sweden 2019
- Markus Wilfinger (Austria)
- Peter Tretter (Germany)
- Gerard van Looijengoed (The Netherlands)
- Viktor Takacs (Hungary, organizing country 2018)
- Simone Götsch (Italy)

A member of the head jury cannot perform as (international) jury member or as head of a task during the championships. A member of the committee is allowed to do both, committee and jury; or committee and head jury; or committee and head of a task.

1.2.2 Tasks of the committee

- a) To handle and confirm the rules of the European championships and to take into consideration all changes and additions that the organizing country or other participating countries may suggest and collect these ideas and changes during the year and perform proposals for the preparation meeting.
- b) To determine the places where the competitions are to be held and to make other arrangements in accordance with the rules.
- c) To deal, at a meeting held a half year before the competition, with the applications for the arrangement of the following competitions in every year, and to decide where the following competition is going to be held.
- d) To control the level of the arrangements made for the competitions in order to approve that similar conditions are offered to all participants.
- e) To select the referees among the nations and to define the tasks of the referees and assisting personnel that has to count the scores, as well as to supervise their activities. Should a person

that has been appointed referee or who belongs to the assisting personnel or to the group that has to count the scores turn out to be biased or prejudiced, the organizing committee is entitled to replace him.

- f) The committee makes a proposal for the head of task and the (international) jury members for the preparation meeting.
- g) To cast lots on the order of performance and to take care that unbiased conditions are created for all participants.
- h) To determine at a meeting held in enough time before the competition, suitable measuring devices to be used in measuring the results.
- i) The rules can be changed by members of the Preparation meeting. The decision must be made by simple majority (one nation is one vote). Proposals shall be drawn by the committee.

1.2.3 Tasks of the head jury

- a) To deal with remarks and protests made by the participating delegations during the competitions and to make final decisions concerning them.
- b) When required, to disqualify those who violate the rules of the competitions or who otherwise offend the spirit of the competitions.
- c) To make summaries of the registers of the competitions and to announce the winners.
- d) To hold the presentation ceremony.
- e) The organizing committee is obliged to take care that the competitions are carried out in an honest way and in the spirit of friendship, co-operation and mutual respect.
- f) If the head jury needs to take a fast decision, e.g. to ensure the time schedule, it is allowed to make a decision when 4 of the 7 members are involved and all 4 agree with the decision.

1.2.4 The referees

The referees will contain both national and international members at each task. One international jury member will be appointed as head of the task during the competition. He will be assisted by a second international jury member, both are selected by the committee and appointed at a meeting.

- a) The heads of the tasks coordinate the tasks, the measurements, the preparation and the performance.
- b) The head of the tasks shall be selected from the group of experienced referees which every participating country tries to consolidate.
- c) The head of the task has to give permission to the press to enter the arena after questioning the competitor who has the right to refuse.

Each country must bring at least one referee to maintain and consolidate the group of jury members and make the championships better every year.

Task	head of the task	international jury member
Felling:	Franz Wigoschnig	Otmar Gönitzer
Limbing:	Erik Pander	N.N.
Precision:	Julian Bruhn	Jochen Grünberger
Combined:	Armands Lapins	N.N.
Fitting:	Gregor Cesarek	
Forestry course	Jochen Grünberger	Franz Wigoschnig

Table 2: Head of tasks

The head of the tasks will carry out the judging in the way as described in Appendix I.

1.2.5 Participation in the competitions

Participation in the European championships is within the discretion of each country.

Each country sends one team. To avoid discussion the following procedure will be followed:

- A team/school/nation replays the application form and sends it to the organizing school;
- The organizing school, checks at the closing date of the application period, about 1 month before the event, if there is more than one application per nation;
- If there is, these schools will be informed that they have one week to decide how to solve the problem, otherwise this nation cannot participate.
- If there is just one application for a nation, an official confirmation of application is sent to the school. This document must be printed and shown on arrival.
- The applications shall be taken in order of receive date, however, countries that attend the preparation meeting are always allowed to start.
- Each nation is responsible to organize the participation some way or another. The committee,

organizing country or head jury is not responsible to decide about this procedure.

The rules confirmed by the international organizing committee shall be observed in the competitions. Each participating country may send a national delegation to the competition, on the choice and training of which it makes its own decisions.

- a) Participants must be students of schools and be experienced enough to work safe with a chainsaw, not apprenticeship without formal connection to the school.
- b) Age level: 16 - 25 years; exceptions must be approved by the head jury. So students born in 1992 and younger are allowed to join the competition in 2018.
- c) The students can take part two times.

1.2.6 Tasks of the organizing country

- a) To give, a written application to the committee concerning its willingness to organize the following year's competition.
- b) To arrange, at the latest 6 months before the competition, a meeting of the members of the committee and interested countries. This date should be announced at the championships before.
- c) To get familiar with the sites of the competition and other arrangements affecting the general procedure of the competition.
- d) To invite the committee, the head jury and the nations/schools to the competition at least 3 months before the date.
- e) To prepare a list of problem points which might possibly come up and which can be discussed at the referees meeting to be held during the course of the competition.
- f) To inform the invited nations of any change of rules or amendments based on conditions at the locality on the meeting before the opening of the competition. If separately agreed upon with the organizing country, a member of the committee may bring an expert with him to the meeting. The expert, however, has no right to vote.
- g) The invited delegation of the countries participating in the competition is to consist of the following:
 - i. one head of the delegation
 - ii. one technical leader of the delegation
 - iii. four contestants
- h) The leader of the delegation and the technical leader may be elected members of the jury for different contests during the competition.
- i) To appoint the measuring groups.
- j) To advice the measuring groups and the referees concerning the method of measuring and measurement devices.
- k) To forward these regulations to the participating countries and to each member of the committee.
- l) Apart from the official representatives, the country may invite observers to attend the competition.
- m) The country takes care that the participants coming first, second and third in the contests are awarded medals and diplomas, this applies to (as a minimum as displayed in table 3):

Medals:

- The best 3 teams for technical events, Forestry course and total score;
- Best 3 individuals for each technical discipline
- The best 3 individuals in technical result
- If ladies take part medals / diplomas are given for the single ranking

Diplomas:

- The 3 best individual competitors of each technical event
- The best 3 teams for technical events, Forestry course and total score;
- The best 3 individuals in technical result
- All competitors for taking part

Event	Medals				Diplomas
	1st	2nd	3rd	Summary	
Fitting a new chain	1	1	1	3	3
Bucking by combined cut	1	1	1	3	3
Precision bucking	1	1	1	3	3
Undercut and felling cut	1	1	1	3	3
Limbing	1	1	1	3	3
Individuals as total technical result	1	1	1	3	4 p/team
Teams for technical events	6	6	6	18	6
Teams for forestry course	6	6	6	18	6
Teams for total	6	6	6	18	6
Total	24	24	24	72	113

Table 3: Schedule for diplomas and medals

Special price for fairness

- Every team gets a voting paper at the beginning of the competition.
 - Every team has to vote and rank 3 teams who have shown the best behavior during the competition (except the own team).
 - The points for place 1 are 3 points, 2nd place 2 Points and 3rd place 1 point.
 - The counting will be made by the head jury.
 - Only the winning team (1st place, most points) gets a price.
- n) The country shall bear the costs occurred in connection which the arrangements made for the competition:
- The costs of the meeting of the members, head jury and European committee (accommodation, meals etc.).
 - Costs of the upkeep of the delegations participating in the competition, the head jury, the members of the committee and referees during the course of the competition (accommodation, meals, etc.).
 - All expenses caused by the technical preparations for the competitions.
 - Costs for medals, diplomas and other awards and souvenirs.
- o) The hosting country shall announce at the preparation meeting the possibilities for girls and girl teams to join the competition.

II. GENERAL REQUIREMENTS

1. General information

Contestants are referred to in the male form in these rules and regulations, although it is of course understood that there may also be female contestants.

As a matter of principle, the terms of these rules and regulations, the instructions given by the referees and the valid guidelines on work safety apply to the world championships.

The European student championships are designed to promote professional skill, sporting ambition, accident prevention and friendship among students from all countries. It is also a good opportunity to inform the public of the work that is carried out in the forest.

Participants must wear their official starting number. Any sponsor advertisement on clothes may not be contra bonos mores.

The contestant must personally take out an insurance policy. The organizers do not accept any liability in this context.

If a participant causes an accident during the competition, a physician or the jury will decide if he may continue to take part in the competition. In the event that the competition is cancelled, only points gained prior to the cancellation are valid for any class.

To avoid misunderstandings, the country hosting the event organizes English speaking persons. All communication during the championship between national/international referees and competitors shall be in English.

Any trainer or teacher are not allowed to step into the arena, only the contestant may watch the measuring without making any comments. The referee may invite the competitor after his performance to watch the measurements, without seeing the result.

For the training of the referees, it will be possible that a B-Team of the country can start at first as pre-contestant without points.

2. The chainsaw

The contestants shall use the same chainsaw throughout the competition. The chain saw must be a standard type, equipped with standard parts with a serial number. All parts must be completely at the chain saw as delivered from the manufacturer and are not visually modified. Safety aspects will be checked. Before the events the saws and bars will be inspected. After the check, the competitor can take his chainsaw with him. An additional check can be done at fitting another chain. Any contestant intentionally using a saw with modifications which have not been authorized will be disqualified, even if these modifications were not noticed when the saw was accepted. The contestant may use a spare saw of the same type with permission from the jury if his saw is broken during the competition. 3 bars of varied length and 4 chains may be used during the competition. The minimum length of each cutter link of the saw must be at least 3 millimeters measured at the shortest part of the top plate. Chains are only accepted if sharpened with a standard, round file. Race chains are not allowed. It is allowed to use original (manufactured by the brand) spike bumpers without spikes.

The following points are checked (see: protocol for checking the chain saw):

- Chain brake;
- Tooth length of chains;
- Length of fixing bolts for bars;
- Condition of the threads for fixing the bar;
- The safety gas handle;
- Entire chainsaw to ensure it is standard;

All contestants must sign to confirm that their saw is of a standard type. All contestants must keep the chain cover on during transportation and during movements from place to place in the competition area, otherwise penalty points will be received. The referees will take extra care for this safety issue, especially after finishing the discipline.

III. THE COMPETITION DISCIPLINES

The championships cover the following individual technical disciplines:

- Undercut and felling cut
- Fitting another chain
- Bucking by combined cuts
- Precision bucking
- Limbing

The championships cover the following team discipline:

- Forestry course (total 6000 points)

IV. SYSTEM TO EVALUATE PERFORMANCES

The participants' professional skills are shown in the championships results. If the competitor performs well (short time, precision, quality), he will be awarded points that are added up. If the performance is poor or unsatisfactory (failure to observe the safety regulations, damaging the wood, etc.) he will receive penalty points that are deducted from the total score. Penalty points can be given more than once for repeated failure to observe the safety regulations. However, the minimum number of points for each discipline is zero (no minus points are awarded).

V. CLASSING / RANKING

The following classes are defined:

Fitting another chain: In case of equal scores the contestant with the better time is the winner.

Felling cut: In case of equal scores the contestant with the better time is the winner.

Bucking by combined cuts: In case of equal scores the winner is the contestant whose cuts are closer to each other. If this result, too, is the same, the winner is the one with the better time.

Precision bucking: In case of equal scores the winner is the contestant who got the better results in accuracy of cutting. If the scores of precision bucking are even too, the best time defines the winner.

Limbing: In case of equal scores the contestant with the better time is the winner.

Total: In case of equal scores the contestant with the better felling is the winner.

VI. THE SAFETY REGULATIONS

The country organizing the event provides a **first aid service** to ensure that anyone who is injured is treated promptly and appropriately.

During the European championships the **contestants** have to be dressed and equipped appropriately and in accordance with the regulations. This includes for the competitor in particular helmet (including ear protection and protective facial net) during Bucking by Combined Cuts, Precision Bucking, Undercut and Felling Cut and Limbing. When he enters the arena; gloves; cut retard trousers; protective shoes (EN 345/2) and a jacket (if the head jury decides that the day before, he may leave the jacket). All contestants must be equipped with a first aid set. Competitors which are not able to show a first aid set at fitting another chain, receive 50 penalty points and get 5 minutes to find a first aid set.

The **referees, assistants, jury, international observers** and **press representatives** have to be dressed and equipped in accordance with the regulations when entering the competition sites. Any protective gear must also be used (e.g. assistants also have to wear ear protection).

Contestants who are not equipped in accordance with the regulations (helmet, gloves, cut retard trousers, and so on) will be excluded from the championships.

The country organizing the competition has to take all measures to guarantee work safety during the competitions, but the organizer and the referees will not be responsible for accidents caused by the contestants themselves during their preparation for the performances or during the performance itself or by faulty tools.

When starting, chainsaws must be fixed either on the floor or between the knees as shown in figure 1. The chain brake must be active.

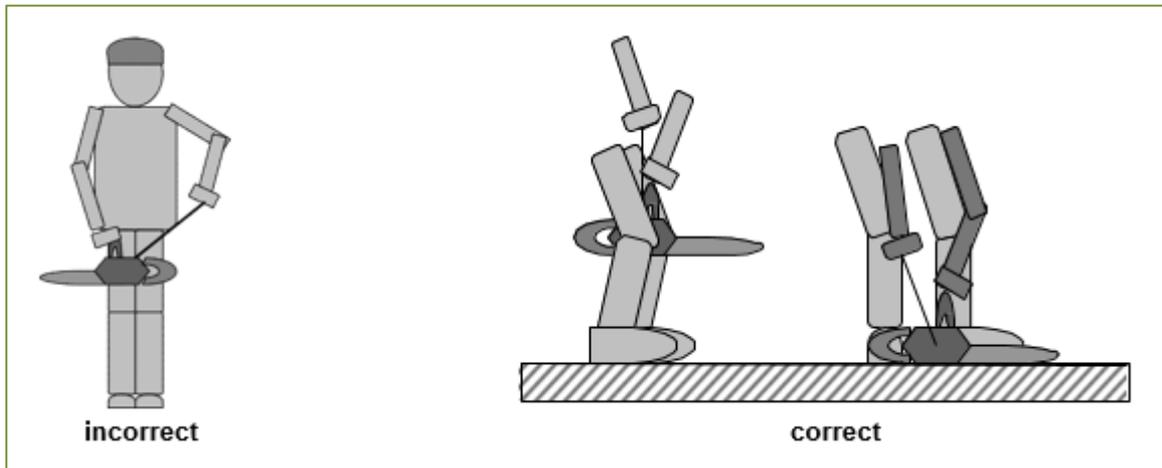


Figure 1: How to start the saw

The starting commands are the same for each discipline. The commands are: “Ready” “Go”

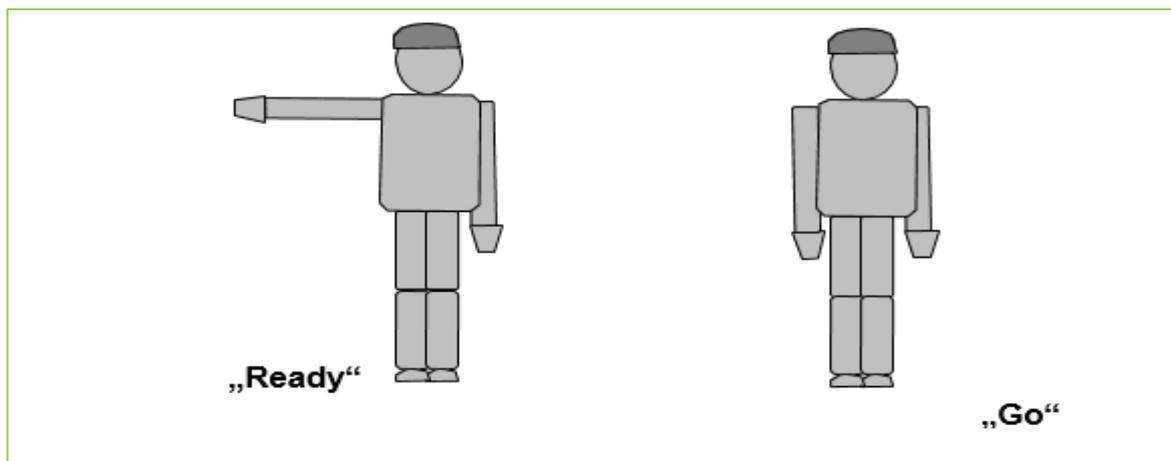


Figure 2: The starting commands

The starting command is therefore divided into two, as shown in figure 2.

The tools and the participant must stand fully behind the starting line (figure 3) when someone starts. This rule applies for all disciplines. The chain saw may not be touched with the hands while starting the disciplines fitting, felling, precision and combined cutting.

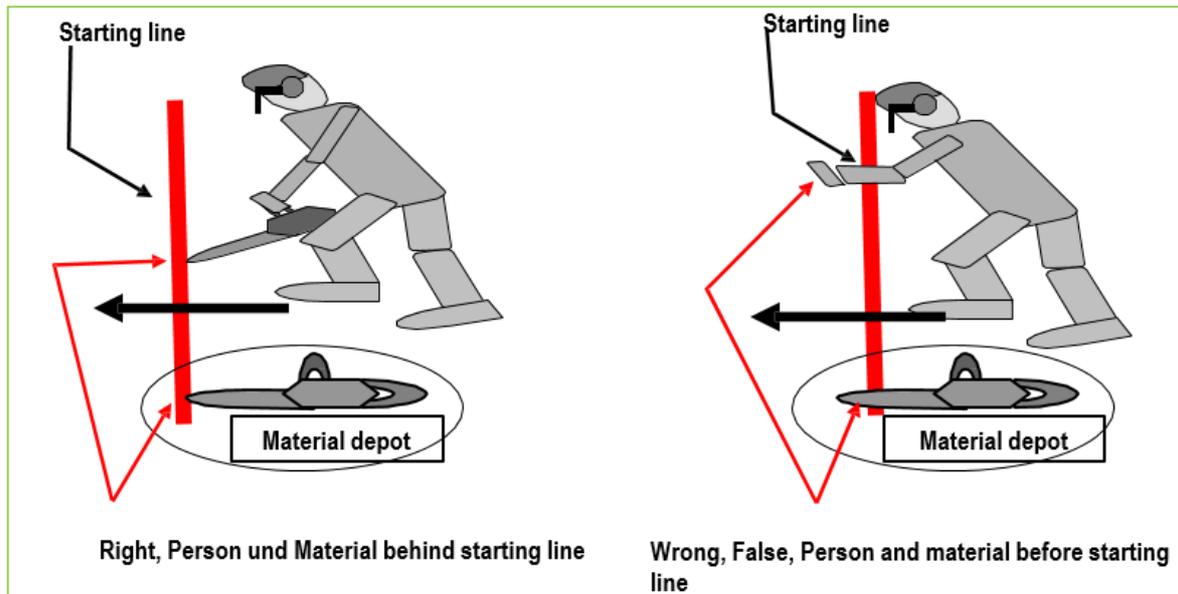


Figure 3: Start position for the material and competitor

Any breaks of work safety shall be subject to penalty points. Penalty points for failing to observe the safety regulations can be given more than once in the same discipline (e.g. "walking while the chainsaw is running"). Penalty points in the respective disciplines are set in accordance with table 4 below.

We complete these rules with:

- Normal eye or sun glasses are not allowed as protection.
- The contestant is not allowed to use any additional marking instruments.
- The contestant has the right to concentrate (max. 1 min.) before each performance.
- The contestant has to take out an insurance policy in his native country. The national committees are responsible for sufficient health and accident insurance. Contestants start at their own risk.

No.	Violations of general safety rules	Penalty points / Event				
		1	2	3	4	5
1	Appearance on the competition site without call	50	50	50	50	50
2	Working without gloves or other hand protection, helmet, eye protection, ear protection, protective footwear, leg protection	20		20	20	20
3	Starting the saw in an incorrect way	30		30	30	30
4	Touching the saw chain while the engine is running	50		50	50	50
5	Moving from place to place when the saw chain is running	20		20	20	20
6	Saw not starting within 5 minutes	30		30	30	30
7	Using the saw one-handed when the chain is running	20		20	20	50
8	Injuries that do not require medical attention	20	20	20	20	20
9	Injuries that require medical attention	50	50	50	50	50
10	First-aid kit or safety equipment is missing	No permission to start				
11	Violation of general safety rules	50	50	50	50	50
12	If the contestant moves back after the finishing action for the discipline and manipulates something	50	50	50	50	50
13	Bad behavior f.e. missing respect, insulting, throwing away tools or chainsaw	20	20	20	20	20

Table 4: Penalty points for violation of general safety rules

VII. PERFORMING THE TECHNICAL DISCIPLINES

1. Tree Felling

1.1 General information:

It is possible to make the felling in three different ways or options:

1. Real tree-felling
2. Mast-Felling
3. Simulator-Felling

The school or country can choose one of these options for the competition. The chosen option shall be announced at the preparation meeting the year before.

- For all options the stem has to be cut as a “fore hanger” (hanging in front). The holding band has to be cut from outside to inside the stem.
- For all options it is not allowed to make a swinging-cut.
- For option 1+2: Wedges may be used, but are not obligatory. The competitor has to bring a wedge and an axe (or similar equipment) to the felling discipline.
- For simulation the stems has to be prepared the same way as for combined cuts/precision bucking.

Representatives of the media may only enter the competition area with the authorization of the head of the task and under the supervision of the jury. Suitable protective gear must be worn. The technical leader may help the contestant in determining the felling direction within the given time at real tree felling. When the option mast felling or simulation will be carried out, this is not allowed.

The competition takes place on roughly the same kind of site for all contestants. The selected trees must have roughly the same height, virtually the same thickness and of the same species. The Breast Height Diameter (BHD) shall be between 28 and 38 cm. All trees must, however, be within a range that varies not more than 4 cm. Trees that incline more than 2 degrees, have an obviously eccentric crown or show signs of rot may not be selected for felling. All trees must have a clear fall in at least one direction. The felling direction where there is clear fall is specified, but does not necessarily have to be observed.

Tree height 50 m, Deviation from stem = 1. 50 m	Tree height 40 m, Deviation form stem = 1. 20 m
Tree height 30 m, Deviation from stem =0. 90 m	Tree height 20 m, Deviation from stem = 0. 60 m

Table 5: Declination of the tree

The real tree felling is generally carried out in the forest and always with naturally grown trees.

When the discipline felling is held on a site outside the forest, all the masts-trees (poles without branches) must have approximately the same thickness, height and species. The danger zone is in this case $1\frac{1}{2}$ tree length. (Height min. 16m above ground). The working height will be marked with color paint right above the place where the pole is fastened.

There may be no spectators in the danger zone when option 1 or 2 is used. In case of option 1 the danger zone will be twice the height of the tree, 360° around the tree see figure 4.

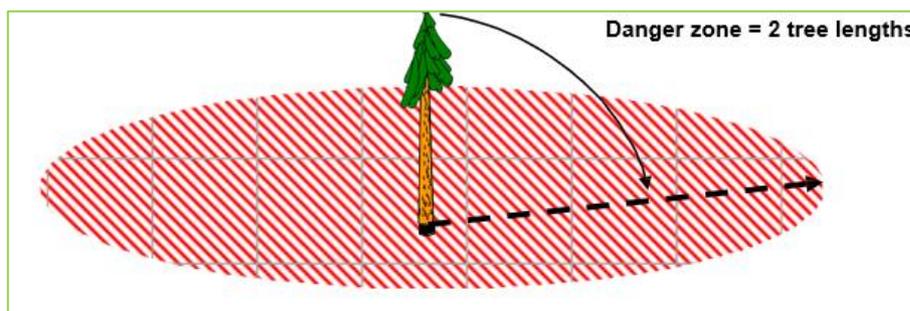


Figure 4: Danger zone during real tree felling

If the jury decides to hold the felling competition despite difficult weather conditions (wind), it is not possible to submit an appeal concerning conditions affecting the competition.

Lots shall be drawn to allocate the trees to the contestants. All trees must be numbered before the lots are drawn (including the spare trees). It is permitted to divide the site into separate starting fields. The lumbering is inspected after the lots are drawn. Appeals made at a later stage shall only be accepted if the faults were not previously visible, such as butt rot, for instance (see figure 19).

Only the following persons may enter the competition area: the national and international referees, a team to help the referees/organization and the contestant currently performing.

If a constant has been authorized by the jury to repeat the discipline following a protest (hidden faults such as butt rot, etc.), he should act at the end of the competition. He then has to fell the spare tree with the lowest starting number. It is also possible to divide set up starting fields in this case.

The country hosting the event provides machines and staff to deal with emergencies (releasing saw bars that are caught in the kerf, dealing with hanger trees, removing felled trees, etc.).

Any kind of marking equipment or other aids (tape measures, marked gloves, etc.) are prohibited, as are non-standard markings and equipment on the chainsaw or on the bar. For instance, it is allowed to mark the depth of the sink with a felt-tip on the bar, or to mark the width of the hinge, the height of the felling cut or of the top cut of the sink. It is also allowed to mark the height of the sink with the chainsaw, or the width of the hinge with the claw (see figure 5).

The following tools may be used for felling:

- chainsaw
- wedge
- wood-splitting hammer
- axe
- breaking bar
- plumb line

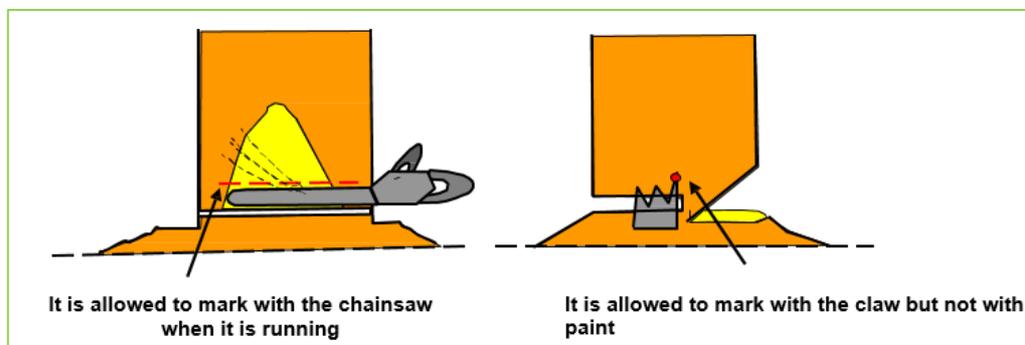


Figure 5: Example of markings

1.2 Preparing the felling site and trees

The felling site shall be prepared as follows:

- If necessary, dividing the felling site into starting fields;
- Selecting and numbering the trees;
- Establishing the provisional felling direction (clear fall);
- Selecting and numbering a number of spare trees;
- Marking a line on the trunk above which no horizontal cut may be made (see figure 9);
- Felling all trees not required for the competition if necessary;
- Restricting access to the competition site;
- Setting up a zone for spectators;
- Setting up a waiting room for contestants;
- Providing an area for first aid and the scoring office;
- Setting up a protected waiting room for the nations;
- Setting up toilets and personal washing facilities, etc. for contestants and spectators.

1.3 Preparing the felling discipline

- Announcing the provisional felling direction (clear fall)
- Determining the exact felling direction by the contestant, marking and setting up posts to ascertain the definite felling direction (see figure 6)
- Removing any fallen trees within the felling area
- Indicating the starting lines (see figure 6)
- Marking the retreat zone to the left and right of the tree (see figure 6- figure 7)
- Placing the chainsaw and the tools behind the starting line before the start (see table 4)

1.4 Start and finish of the discipline

The discipline starts when a referee gives the signal to start the chain saw and ends when the competitor has reached one of the safety zones. The time starts after the starting command and ends when the tree hits the ground or in case of simulation felling the time stops when the contestant crosses the finish line and puts the chain saw at the ground behind the line.

1.5 Assessing the performance

- Too early start
- Time for actual felling
- Deviation of tree from felling direction
- Depth and angle of sink
- Width of the hinge
- Height difference between the felling cut and the bottom of the sink
- Damage to the stem
- Height of the felling cut
- Observance of the general safety regulations (see table 4)

1.6 Steps involved in the felling operation

The contestant enters the felling site upon the referee's call. The contestant brings his chainsaw and auxiliary tools with him, he will be guided by a member of the jury.

The referee shows the tree to be felled by the contestant as well as the general direction in which it has to be felled.

Any questions the contestant may have are answered with the help of an interpreter. Before the start the contestant has 3 minutes to check the tree and the prevailing wind conditions.

The contestant determines the exact direction in which he wants to fell the tree. The contestant places or shows where to place a sharpened stake with a length of 1.5 m at a distance of 15 m from the tree. The stake will not affect the fall of the tree. The contestant has a maximum of 2 minutes to determine the direction in which the tree is to be felled. The assistants also place two additional 50 cm pegs at a distance of 1 m on both sides of the stake mark (see figure 6). If there is an obstacle (tree stump, etc.) and another distance has to be selected, the exact distance is noted down.

Safety zones will be marked on the ground.

In the meantime the contestant may prepare the trunk (remove undergrowth, remove earth from trunk). The tools are to be placed in the safety zone before the start (see figure 6). After the start the contestant can move the tools as required.

The time from the start signal to the moment the tree touches the ground/the contestant is behind the line and put the chainsaw on the ground is recorded with two stopwatches. If the contestant starts too early (before the signal), 20 penalty points will be deducted.

When a referee gives a signal, the contestant starts his chainsaw and places it on the ground behind the start line and indicates that he is ready. After the "start" signal the contestant takes his saw and tools and fells the tree. In order to qualify, the contestant has to fell the tree within 5 minutes.

Before the tree has fallen to the ground, the contestant shall move to one of the safety zones, a sector of 45°, whose axis is at a 45° angle to the axis of the felled tree and at least 2 m away from the center of the tree stump.

The forbidden zone is the area that covers an angle of 45° on either side of the sector around the axis of the felled tree. Depending on the danger, the contestant can retreat to either one of the safety zones (see figure 6, figure 7 and figure 8).

When the tree does not fall on the aiming point, then the direction of the safety zone changes corresponding (figure 7).

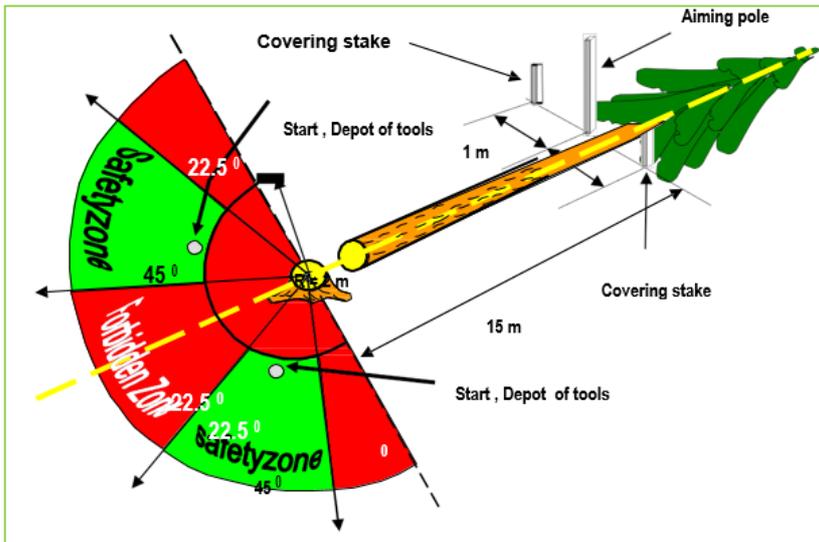


Figure 6: Direction of felling

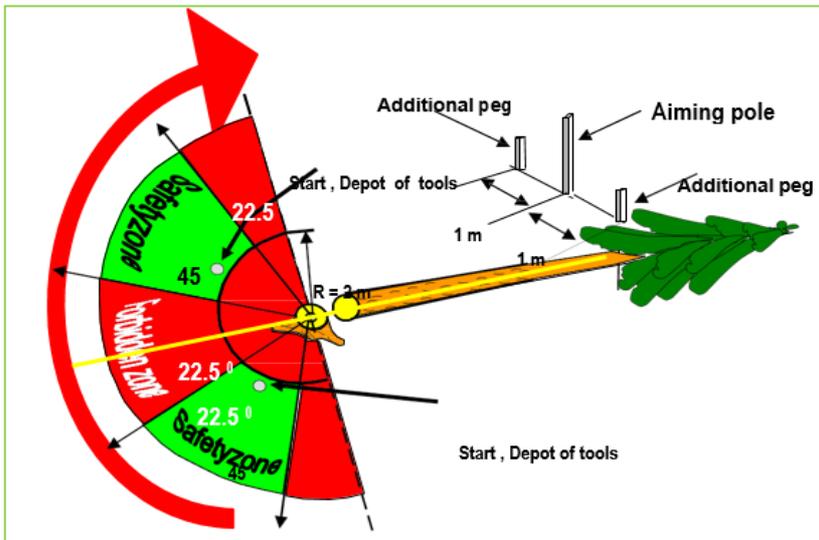


Figure 7: Safety zone after insecure felling

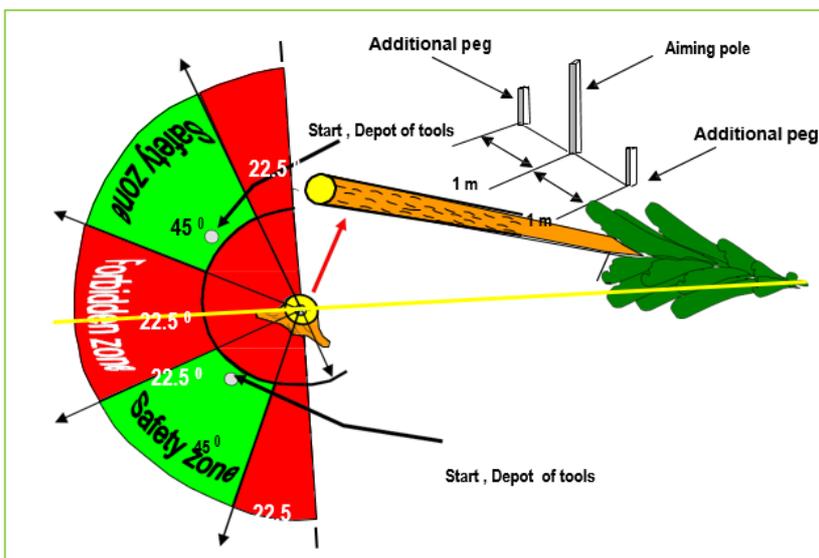


Figure 8: Safety zone when the tree jumps

When the tree jumps after hitting the ground then the template will be put to the stem and according to figure 8 the safety zone will be measured.

The participant remains in the safety zone so that the correct place of retreat can be measured. He should wait for the referee to issue instructions.

Once the task has been completed, the referees will meet first, then invite the contestant to overview the measurements. The contestant may stand and watch the measurements without seeing the result exactly (e.g. angle numbers); he may not, however, get involved in establishing the results or in taking the measurements. The contestant is however, entitled to appeal against the results in writing a protest within the prescribed time (30 minutes after the evaluation).

1.7 Measurements and evaluations

All measurements are written on the tree stump.

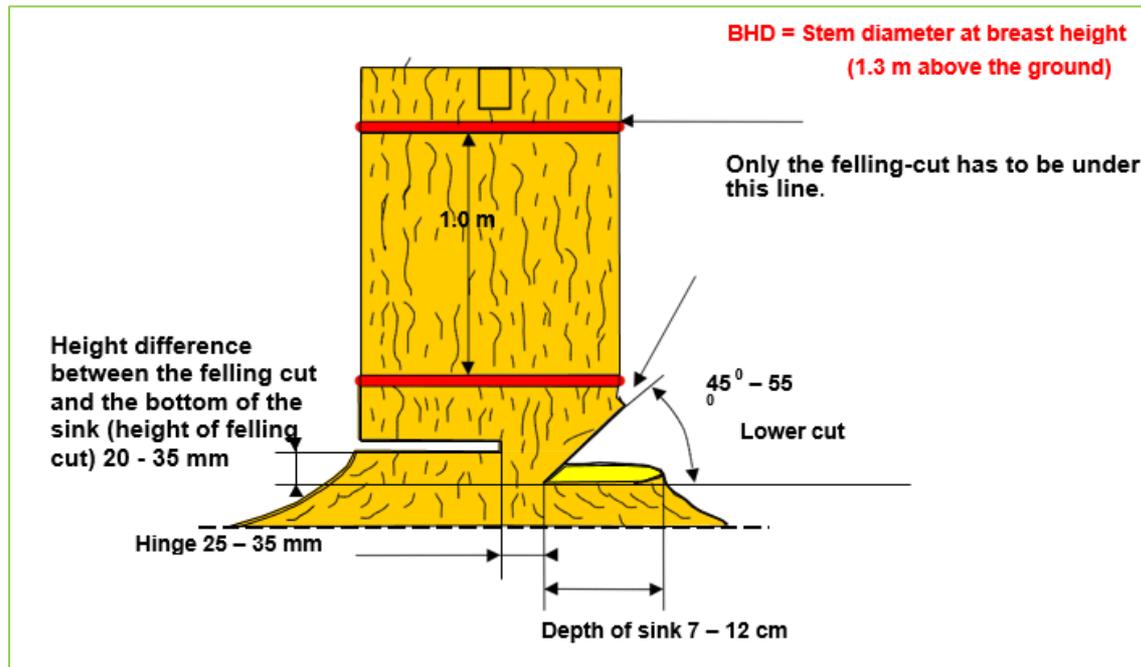


Figure 9: Measurements and markings for option 1 real tree felling

Points are awarded for:

Felling time:

For option 1, real tree felling, and option 2 mast felling, the contestant has to complete the under and felling cut in a time witch is equal to or under 3 minutes. If so, the contestant is awarded 60 points. For times between 3 and 4 minutes, 1 point is deducted for each second exceeding 3 minutes. If the performance takes more than 5 minutes, no points are awarded for the entire discipline.

For simulation-felling (option 3) is the total time 90 sec. The contestant is awarded 60 points. For times over 90 sec. 1 point is deducted for each second. If the performance takes more than 5 minutes, no points are awarded for the entire discipline.

Two stopwatches are used to measure the time and the average of both measurements is recorded in an accuracy of 0.1 second.

Deviation:

The measurement of the deviation is carried out horizontally from the stake mark at right angles towards the center line of the felled tree stem (see figure 10)

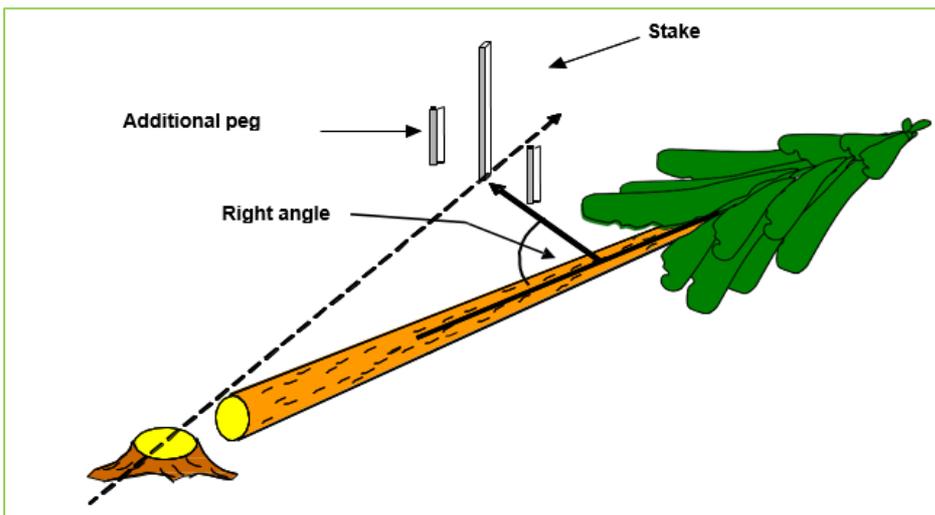


Figure 10: Distance measurement at right angles to the felled tree

The result is rounded up or down to the nearest centimeter. For every centimeter's deviation 1 point is deducted from the contestant's score. The maximum possible score is 400 points. Deviations of 400 cm and more are awarded 0 points (no minus points, as shown in table 6). The deviation is measured from the center of the stake mark to the center line of the tree stem (see figure11).

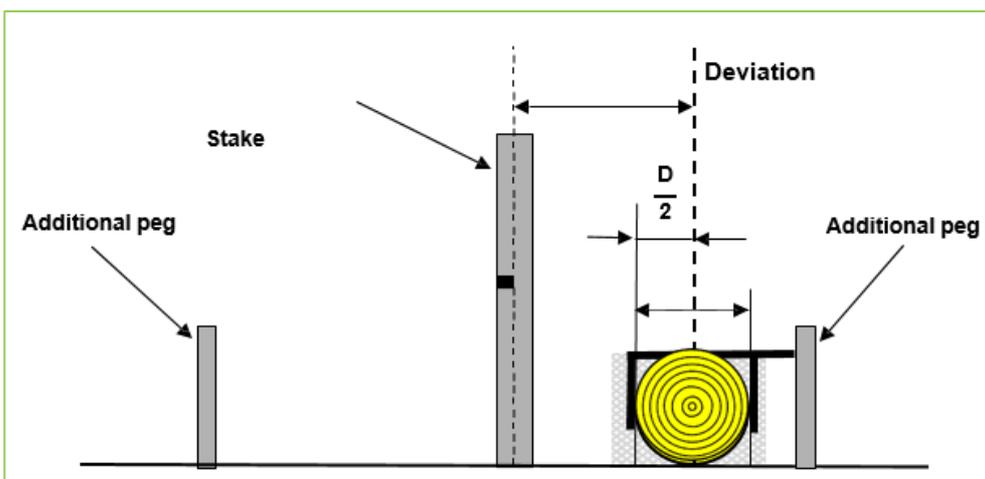


Figure 11: Deviation from felling direction

For option 3 (simulation felling): If the lower cut is not in a straight line, the longest part will be taken by the referees for direction. There will be only one measurement.

The calibration of the laser pointer will be checked by the jury.

Deviation (cm)	Points		Deviation (cm)	Points
0	400		9	391
1	399		10	390
2	398		11	389
3	397		12	388
4	396		13	387
5	395		14	386
6	394		15	385
7	393		16 etc.	384 etc.
8	392			

Table 6: Points for deviation

Depth of sink:

The depth of the sink is measured deducting the bark, starting from the middle of the chord of the sink at an accuracy of 1 cm (see figure 12). Measurements are commonly rounded up or down to the nearest centimeter. Points are awarded as indicated in table 7.

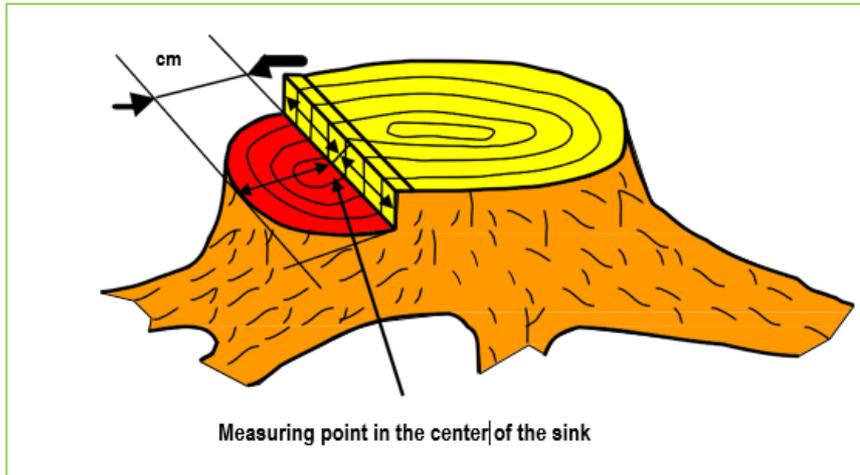


Figure 12: Depth of sink

Depth of sink (cm)		Points
<3	or >16	0
4	15	5
5	14	10
6	13	15
7	12	20

Table 7: Points for the depth of the sink

Angle of the sink:

The angle of the piece of wood which has been cut off is measured in the middle using a goniometer with a measurement accuracy of 30 angular minutes (see figure 13).

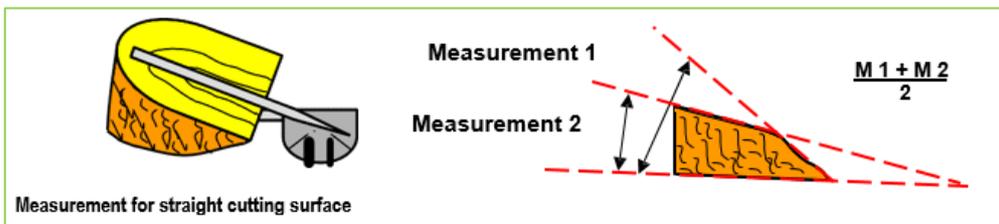


Figure 13: Measuring the sink for straight and round cuts

Should the sink needs to be trimmed, the original felling wedge that has been cut off is used to determine the angle of the sink. If the cutting surface is rounded, the mean of the angles measured is calculated (see figure 13).

The result will be rounded up or down to the nearest degree. If the angle is 45-55°, the contestant is awarded 60 points. For deviations, points are awarded as indicated in table 8.

Sink angle (°)		Points
<= 39	61	0
40	60	10
41	59	20
42	58	30
43	57	40
44	56	50
45	to 55	60

Table 8: Points for the angle of the sink

Width of the hinge:

The width of the hinge is measured at the height of the felling cut with an accuracy of 0.1 mm (see figure 14). The result is rounded up or down to the nearest mm. The measurement is taken horizontally at the broadest and the narrowest point of the hinge. Both measurements are recorded in the protocol. The contestant will be awarded points according to the readings that give the least points. The maximum possible score is 60 points for a width of 25-35 mm (see table 9).

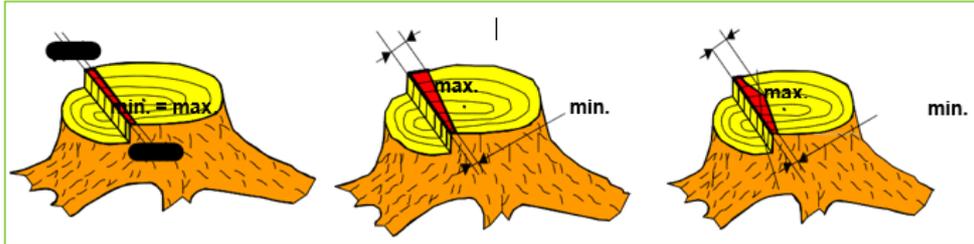


Figure 14: Width of hinge

Measuring the holding bridge (hinge) in option 3, simulation felling: The jury cuts the whole stem (f. e. with a smaller chain). Using two plates for measuring is also possible (“Adriatic method”).

If the hinge (holding bridge) is completely cut through in one place, the contestant is awarded with 0 points for the event felling.

Width of hinge (mm)			Points
<= 10	or	=> 50	0
11		49	4
12		48	8
13		47	12
14		46	16
15		45	20
16		44	24
17		43	28
18		42	32
19		41	36
20		40	40
21		39	44
22		38	48
23		37	52
24		36	56
		25-35	60

Table 9: Points for the width of the hinge

Height difference between the felling cut and the bottom of the sink:

The difference in height between the felling cut and the horizontal lower cut of the sink is measured with an accuracy of 0.1 mm (see figure 15 and figure 16). The result is rounded up or down to the nearest mm.

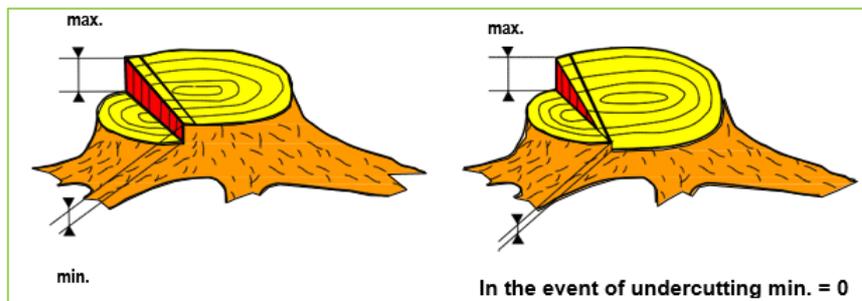


Figure 15 Height difference

The measurement is taken vertically at the highest and lowest point of the felling cut. Both measurements are recorded in the protocol. In the event of undercutting the base of the sink, the lowest value is zero (see Figure 15). The contestant will be awarded points according to the readings that give the least points. The maximum score is 60 points, which is given for height differences between 20 and 35 mm, as indicated in table 10.

Height difference (mm)		Points
< = 8 or > = 47		0
9	46	5
10	45	10
11	44	15
12	43	20
13	42	25
14	41	30
15	40	35
16	39	40
17	38	45
18	37	50
19	36	55
20 – 35		60

Table 10: Points for the height difference

When cutting out the felling wedge and the kerf is cut lower than the base of the sink, the height is measured as shown in figure 16.

If the upper cut or the lower cut of the sink does not end at/meet the other cut, the contestant gets 5 points less for each mm more than 15 mm undercutting.

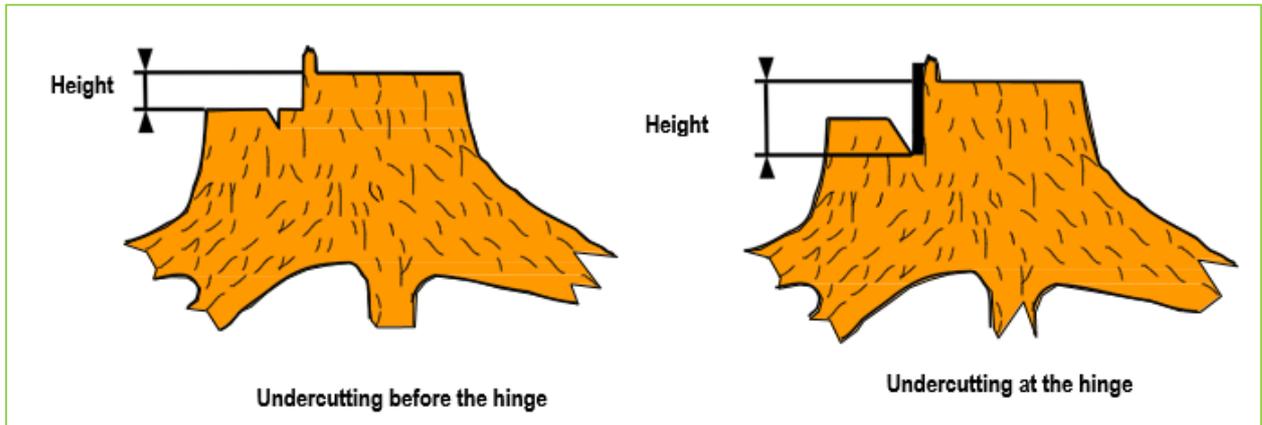


Figure 16: Height measurement for undercutting the base of the sink

Penalty points are given in the following cases:

Splitting in the tree butt:

Any splits in the tree butt are judged by eye (see figure 17). The bark is to be removed from the trunk before measuring. The greatest length of butt splitting caused by a faulty felling method is measured with an accuracy of 1 cm.

If there is more than one split, only the longest is evaluated (see figure 18). Penalty points are deducted according to table 11.

Length (cm)	Penalty points	Length (cm)	Penalty points
<= 5	0	14-15	14
6-7	10	16-17	15
8-9	11	18-19	16
10-11	12	20-21	17
12-13	13	etc.	

Table 11: penalty points for splitting the tree butt

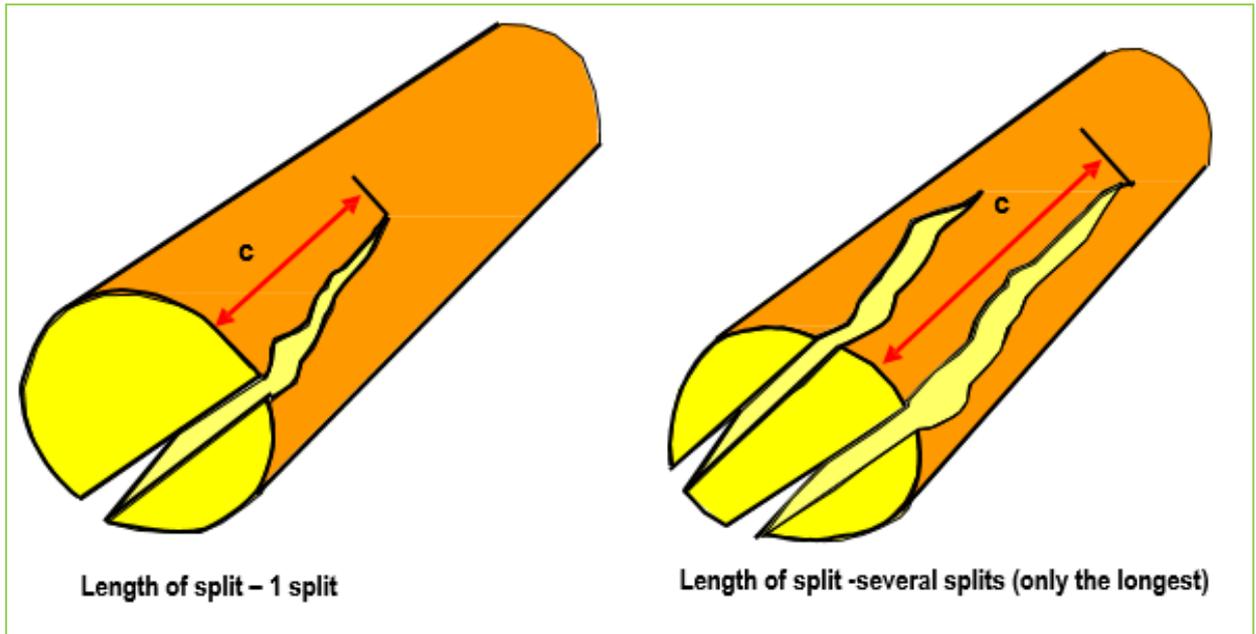


Figure 17: Length of splits

Stump too high:

The distance between the top mark (see figure 18) and the upper edge of the felling cut may not exceed 1.0 m. This distance is measured to the nearest cm. Fractions of a centimeter are rounded up or down. The penalty for a too high stump is 100 points.

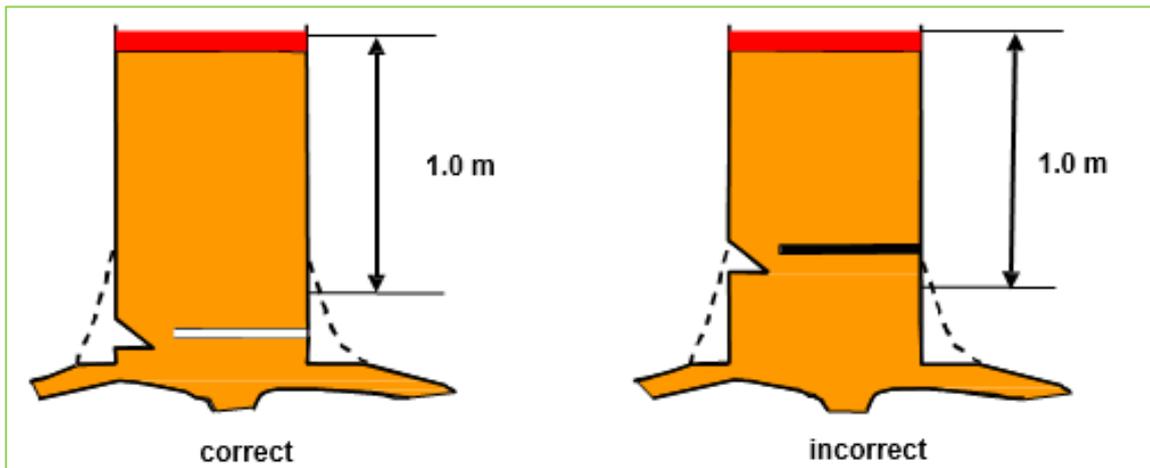


Figure 18: Height of the stump

Incorrect retreat from the tree:

A penalty of 20 points is given for the following: incorrectly retreating from the tree or retreating too late or not looking up to the tree, i.e. not retreating to one of the two safety zones (see figure 6 to figure 8), crossing the tree axis while retreating or failing to retreat before the tree has hit the ground. Incorrect retreat and not looking up, can be punished both with 20 points so 40 penalty points in total.

Using unauthorized markings:

It is prohibited to use any form of aid for measuring and marking. A penalty of 50 points is deducted.

Violations of work safety regulations:

Any violation is recorded and penalty points are assigned as listed in table 4.

Too early start:

20 penalty points are given if a contestant starts too early.

Emergency situation:

If the contestant causes an emergency or dangerous situation during felling (saw bar getting pinched in the kerf or hanger trees, etc.), the referee shall interrupt the performance with the "Stop" command and the contestant is disqualified from the tree felling discipline.

If the jury decides that the contestant caused the emergency, he receives no points for the entire discipline. If conditions during the performances are not equal for all contestants (butt rot, etc.), the referees may give the contestant permission to fell another tree, by approval of the jury.

Complaints about butt rot only can be made if this clearly affects the technique of cutting or felling unfavorably.

In terms of butt rot, according to the regulations a tree should have the following properties (see figure 19):

- The outer 3 cm of the hinge must be healthy
- Any areas of rot within the hinge must not cover more than 1/3 of the hinge (see figure 19).

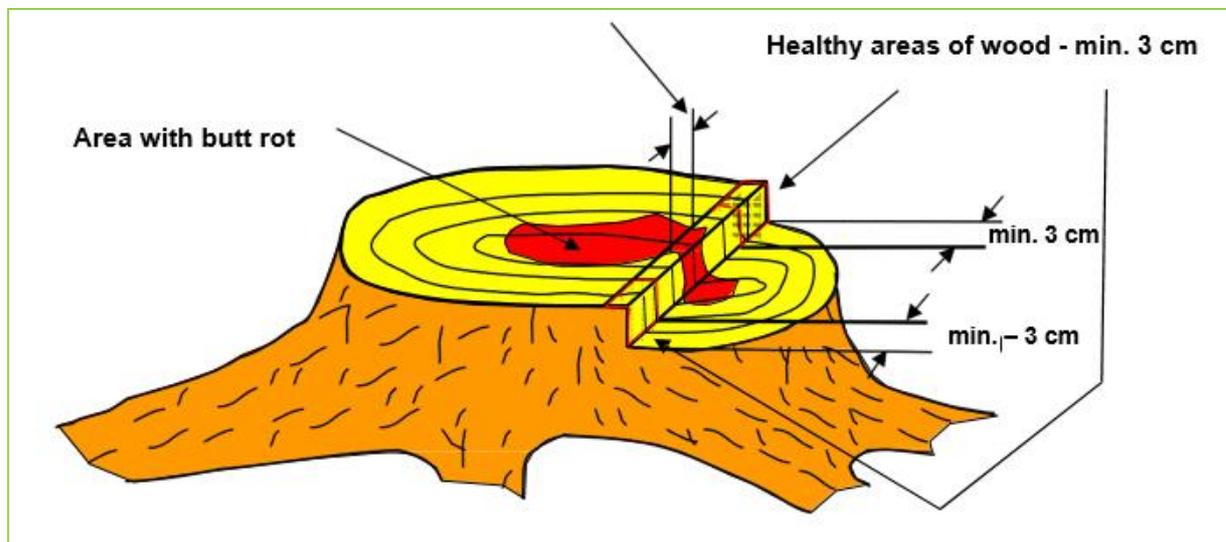


Figure 19: Tree conforming to regulations in terms of area affected by butt rot

2. Fitting another chain

2.1 General information:

For this discipline the contestant shall dismantle and assemble the cutting apparatus of the chainsaw. The next 2 disciplines (Bucking by combined cuts and Precision bucking) have to be carried out without making any changes to the saw.

If the work has been carried out so poorly that the contestant cannot perform the next 2 disciplines (e.g. if the chain is fitted incorrectly), he may check the saw and replace the chain. This is assigned 50 penalty points.

If in the next 2 disciplines (Bucking by combined cuts or Precision bucking) the chain gets stuck, slips off the bar or if a part falls off, the contestant is retrospectively awarded zero points for the "Fitting another chain" discipline.

The table for fitting another chain is 1.5 m long, 70 cm wide and 80 cm high. The table is set at 90° to the starting line with a distance of 1 meter and may not be moved (see figure 20).

Before the start only the inspected saw, a replacement chain, the contestant's personal tools and the stop button may be placed on the table.

The contestant stands totally behind the starting line, gets the starting signal and sets the time running himself by crossing the starting line.

The contestant may perform the discipline without the use of gloves, a safety shirt, a helmet or face and ear protection. Cut retard trousers, safety footwear and a first aid kit must, however, be worn (50 penalty points for missing first aid kit). The contestant has 5 minutes time to organize a first aid kit, then he can start.

The key will be controlled by the referees (preparation- for example tape- is possible). To finish the key must be out of the nut. The button has to be pressed by the hand, not f.e. by an elbow. Otherwise 20 penalty points will be awarded.

Time: The time can be measured with a digital display. It is also possible to use 2 manual watches for timekeeping.

Tension of the chain: There can be a gap between the tie strap and the bar before and after the discipline. Penalty points (20) are given if the driving link is out of the bar. The referee may not touch the chain (checking the chain tension only visual).

2.2 Preparations for the competition site

- Restricting access to the competition site
- Setting up the table
- Marking the starting line
- Setting up the time trigger, and make sure the competitor starts the time when passing
- Setting up the manual stop button for the timer

2.3 Preparations for the discipline

- The saw is inspected to ensure it is standard. In particular no parts may be removed, screws holding the bars in place may not be shortened, the threads must be standard.
- The nuts are then tightened with a dynamometric wrench at a torque of 20 Nm.
- The bar is labelled so that it can be checked after the performance to ensure it has been turned correctly.
- The individual tools are on the table.
- The saw is assigned to the corresponding group.
- The contestant's hands are checked for injuries. Any existing injuries are marked.
- The shortest tooth length is checked on both chains (at least 3 mm).

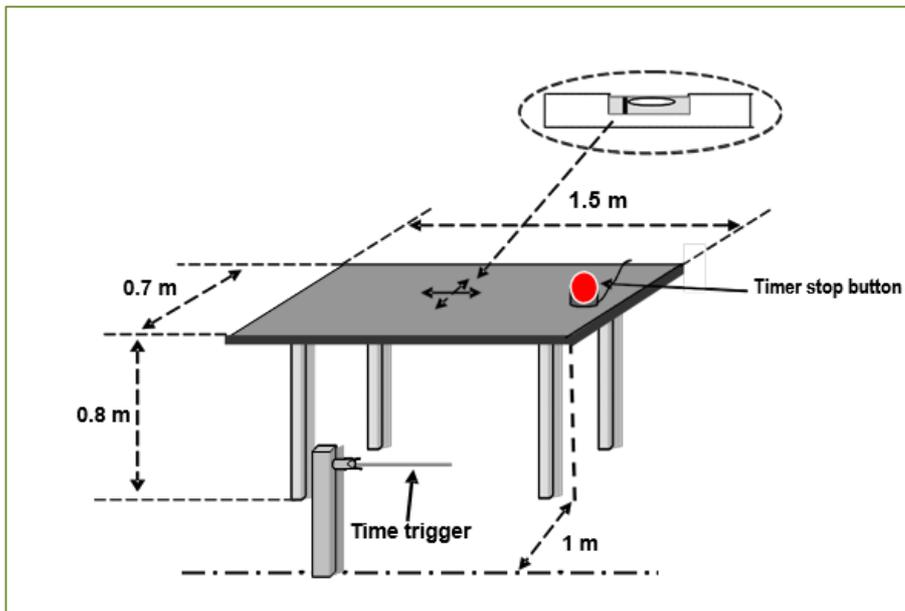


Figure 20: Table for the discipline "Fitting another chain"

2.4 Start and finish of the discipline

The discipline starts when the time is started (triggered by the contestant) and ends when the contestant stops the time.

2.5 Assessing the performance

The chainsaws are divided into two groups:

- Group 1: Two safety screws and chain tightened with screwdriver
 Group 2: Only one safety screw or chain tightened without screwdriver (no bolt).

Points are awarded for:

- Time taken (see Table 12)
- Penalty points for violations of work safety regulations (see table 4)
- Penalty points for carrying out the task incorrectly

2.6 Steps involved

The contestant places the chainsaw on the table and then stands completely behind the starting line, which is 1 m away from the table.

When the "start" command is given, he has to do the following:

- Move to the stick (timer is triggered)
- Release the screw nuts
- Remove the sawdust deflector (if necessary)
- Remove the chain from the bar and the sprocket
- Remove the bar and turn 180° on the longitudinal axis (or 360° for bars that must not be turned or that cannot be mounted at 180°)
- Place another chain onto the bar
- Mount the sawdust deflector (if necessary)
- Adjust the chain tension (if necessary)
- Stop the timer with the hand

Once the discipline has ended, the contestant waits for instructions from the referees.

Once the task has been completed, the jury will measure the result. The contestant is entitled to appeal against the results in protesting within the prescribed time (30 minutes after the evaluation).

2.7 Measurements - evaluations

The following points are awarded for:

Time:

The time is measured on a fully visible digital display in seconds. Points are awarded as indicated in table 12. Measuring accuracy = 0.1 seconds.

Group 1 / Time etc. + 2 Points / 0,5 sec.	Points	Group 2 / Time etc. + 2 Points / 0,4 sec.
8,1 - 8,5	140	4,6 - 4,9
8,6 - 9,0	138	5,0 - 5,3
9,1 - 9,5	136	5,4 - 5,7
9,6 - 10,0	134	5,8 - 6,1
10,1 - 10,5	132	6,2 - 6,5
10,6 - 11,0	130	6,6 - 6,9
11,1 - 11,5	128	7,0 - 7,3
11,6 - 12,0	126	7,4 - 7,7
12,1 - 12,5	124	7,8 - 8,1
12,6 - 13,0	122	8,2 - 8,5
13,1 - 13,5	120	8,6 - 8,9
13,6 - 14,0	118	9,0 - 9,3
14,1 - 14,5	116	9,4 - 9,7
14,6 - 15,0	114	9,8 - 10,1
15,1 - 15,5	112	10,2 - 10,5
15,6 - 16,0	110	10,6 - 10,9
16,1 - 16,5	108	11,0 - 11,3
16,6 - 17,0	106	11,4 - 11,7
17,1 - 17,5	104	11,8 - 12,1
17,6 - 18,0	102	12,2 - 12,5
18,1 - 18,5	100	12,6 - 12,9
18,6 - 19,0	99	13,0 - 13,3
19,1 - 19,5	98	13,4 - 13,7
19,6 - 20,0	97	13,8 - 14,1
20,1 - 20,5	96	14,2 - 14,5
20,6 - 21,0	95	14,6 - 14,9
21,1 - 21,5	94	15,0 - 15,3
21,6 - 22,0	93	15,4 - 15,7
22,1 - 22,5	92	15,8 - 16,1
22,6 - 23,0	91	16,2 - 16,5
23,1 - 23,5	90	16,6 - 16,9
23,6 - 24,0	89	17,0 - 17,3
24,1 - 24,5	88	17,4 - 17,7
24,6 - 25,0	87	17,8 - 18,1
25,1 - 25,5	86	18,2 - 18,5
25,6 - 26,0	85	18,6 - 18,9
26,1 - 26,5	84	19,0 - 19,3
26,6 - 27,0	83	19,4 - 19,7
27,1 - 27,5	82	19,8 - 20,1
27,6 - 28,0	81	20,2 - 20,5
etc. -1 Point / 0,5 sec.		etc. -1 Point / 0,4 sec.

Table 12: Points for Fitting another chain

Penalty points are given in the following cases:

Dropping items

Dropping any item from the table during the performance will be penalized with 20 penalty points. The contestant may, however, pick up any items he has dropped and complete the task.

Bar not turned

The bar must be turned at least once in the longitudinal axis. If the contestant fails to do so, he receives 50 penalty points.

Failure to carry out task correctly

If there is a gap between the chain and the bar so that the driving link is out of the bar, 50 penalty points are given. The referee may not touch the chain when checking the chain tension.

Injury involving bleeding

Any recognized injury that is bleeding is assigned 20 penalty points.

Safety regulations

Violations of work safety regulations: depends on the violation (see table 4).

Manipulating the saw after the discipline has ended

At the contestant's request or as ordered by the referee, incorrectly fitted chains can be / have to be refitted. The saw is checked to ensure that the chain is correctly fixed in place and that all screws are fitted and tightened (cannot be released without tools). 50 penalty points are given if a contestant has to refit the chain.

Incomplete fitting of cutting apparatus:

If the contestant fails to fit all parts, he receives a score of zero for the entire discipline.

Poorly fitted cutting apparatus:

If in one of the next 2 disciplines ("Bucking by combined cuts", "Precision bucking") the chain, a nut of the chain cover or any other part falls off, the "Fitting another chain" discipline is awarded a score of **zero**.

The contestant also receives **zero points** for the **time** for that discipline. He may, however, refit the chain and complete the tasks in the disciplines "Bucking by combined cuts" and "Precision bucking".

Incorrect stopping of the time

The competitor is allowed to stop the time with the key in his hand. However, the button must be pressed with the hand and not for example by the elbow or arm. 20 penalty points will be given.

3. Bucking by Combined Cuts

3.1 General information:

The contestant has to cut a disc of wood no thinner than 3 cm and no thicker than 8 cm from two stems. This must be done by cutting the first half from the bottom to within the red band, and then cutting the rest from the top. This applies to both stems.

On each stem the cut must be at right angles to the longitudinal axis of the stem and should join at the same level.

When cutting upwards, the upper line of the red band must not be crossed. The contestant must also, however, ensure that he at least cuts into the red area.

The downwards cut must start within the green zone.

When cutting downwards, the bottom line of the red band must not be crossed.

The contestant has the right to inspect the arena before starting, but he is not allowed to touch the stems with his chain saw or set any other markings before starting (penalty: 50 points).

The chain brake must be on, during starting only. Walking with a running chain gives penalty points (see table 4).

3.2 Preparing the competition site:

Two saw horses positioned in parallel are set up. A turned stem with a diameter of 35 cm (+/- 1 cm) is attached to each of them (see figure 21).

The boles lie at an angle of 7 degrees to the horizontal plane in such a way that the angles are the same in opposite directions.

The axis of the stem is 70 cm above the ground at the end pointing up, and 40 cm above the ground at the end pointing down (each measured in the middle of the stem).

On both sides of the boles, 10 cm red bands have been painted in the direction of the longitudinal axis (see figure 21). The cut from below and above must be guided into these bands, but it must not go outside them.

At the top of the bole two 10 cm wide bands (total 20cm) are painted in green on the left and right of the vertical symmetry axis (see figure 22).

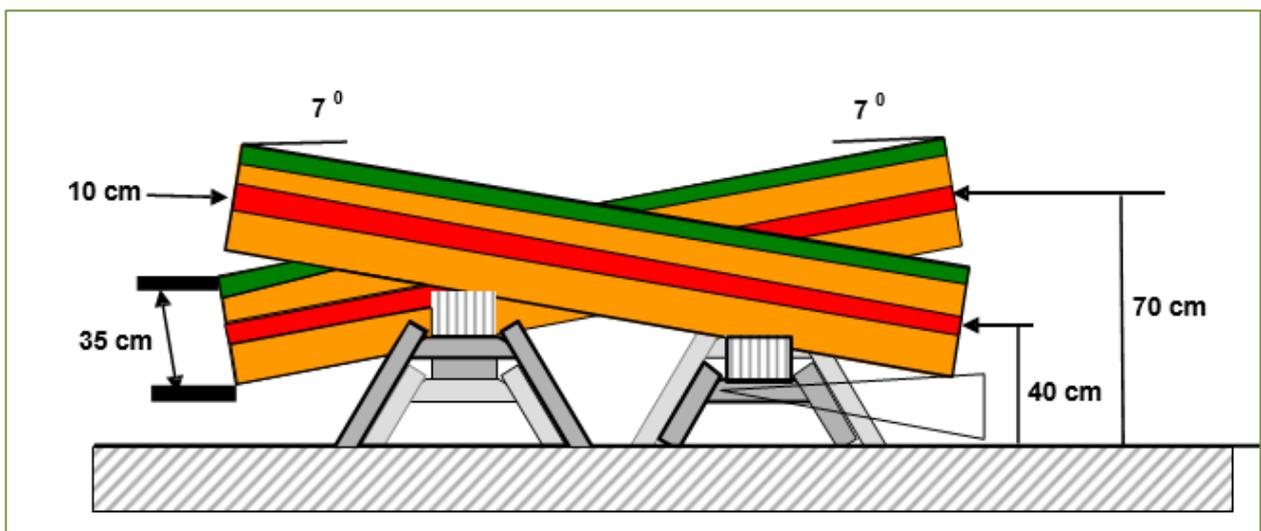


Figure 21: Setting up boles (angle) and diameter

A starting line is marked on the left and the right, 2 m from the center of the boles. The contestants may select whether to start on the left or the right (see figure 22).

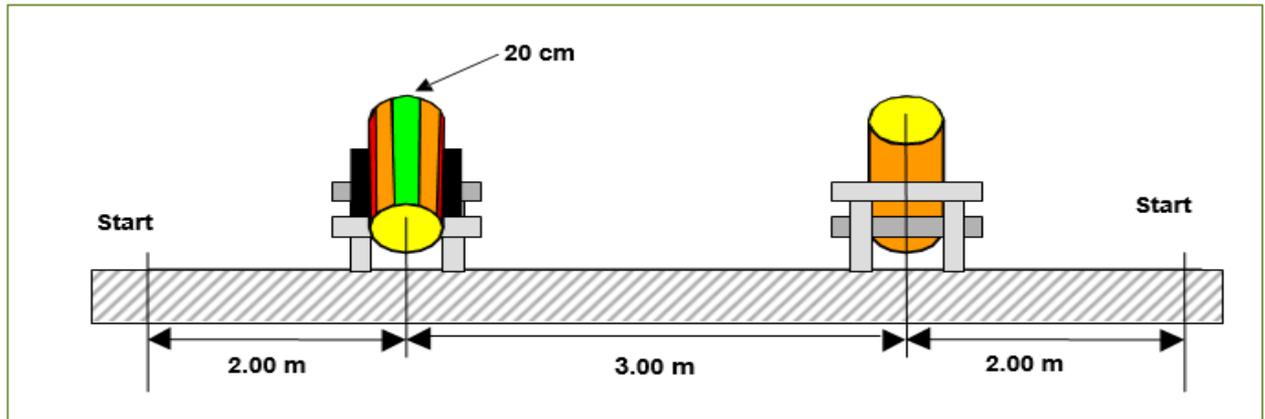


Figure 22: Setting up the horses for the combined cut

3.3 Preparing the discipline

Before the competition, the following must be carried out:

- The height of the stem is set and the stems stay in one line
- The end of the trunk is cut off at a right angle
- The contestant's starting number must be written on the stem before cutting.

After each competitor has finished this discipline, the right-angle will be restored by two assistants if necessary (more than 1° deviation). The student has the right to ask for cutting if there is a disturbing branch and to see the angles before starting the discipline.

3.4 Start and finish of the discipline

The discipline starts when the referee gives the signal to start and ends when the second disc hits the ground or the contestant crosses the finishing line.

3.5 Assessing the performance

Fully completing the task

The task is considered as completed when both discs lie on the ground. If one or both discs do not fall to the ground, the competitor will not receive any points for the stem.

Faulty chain or cutting apparatus

If the chain is jammed, slips off the bar or if the chain cover nut is lost, the contestant receives no points for the time in the "Bucking by combined cuts" discipline. The contestant may, however, refit the chain and complete the task. The contestant is then retrospectively awarded zero points for the "Fitting another chain" discipline. All other measurements carried out once the saw is operational again and the discipline has ended are evaluated as usual.

Chainsaw power:

Points are awarded on the basis of the cubic capacity of the engine. These are divided into the following groups:

- Group 1: 46 - 55 cm³
- Group 2: over 56 cm³

The following points are awarded:

- Time points in accordance with the table 13
- Vertical cut (see table 14)
- Distance between cutting levels (see Table 15)
- Penalty points for violations of work safety regulations (see table 4)
- Penalty points for tasks carried out incorrectly

3.6 Steps involved

The contestant starts the chain saw (with chain brake on) and places it behind the starting line, 2 m away from the bole (the chain saw has to be completely behind the starting line; the competitor is free to choose which side to start; see figure 22).

When the “start” command is given by the referee, the contestant has to do the following:

- Take the chainsaw and go to the first bole
- Cut upwards within the red area, without crossing the red band (visible in the wood)
- Remove the chainsaw from the kerf and continue to saw downwards (starting in the green zone) until the disc falls to the ground. The red band must not, however, be crossed
- Go to the second stem and repeat this cut
- Cross the finish line

Once the competition has ended, the contestant immediately hands over his chainsaw to the referee, as the chain tension may not be adjusted for the next round. The contestant waits for instructions.

Once the task has been completed, the referees will meet first, then invite the contestant to overview the measurements. The contestant may stand and watch the measurements without seeing the result exactly (e.g. angle numbers); he may not, however, become involved in establishing the results or in taking the measurements. The contestant is however, entitled to appeal against the results in writing within the prescribed time (30 minutes after the evaluation).

3.7 Measurements and evaluations

All measurements are written on the cut off disc along with the starting number. The following points are awarded:

Time:

The time is measured with two stopwatches (accuracy of 0.1 seconds) and the mean of both results is recorded in seconds (see table 13).

Group 1	Points	Group 2
etc. Points/Time		etc. Points/Time
+1 point/1 sec		+1 point/1 sec
25	55	22
26	54	23
27	53	24
28	52	25
29	51	26
30	50	27
31	49	28
32	48	29
33	47	30
34	46	31
35	45	32
etc. -1 point/1 sec		etc. -1 point/1 sec

Table 13: Points for time

Angle of cut: (4 measurements)

The angle is measured vertically and horizontally on the stem with a measuring accuracy of 0.5 degrees (see figure 23). All 4 values are recorded. The maximum award is 30 points per log. Decisive is the maximum deviation to 90° 00' (figure 23, table 14). The angle is measured in the middle of the colored line. If the cuts are misaligned, both angle measurements are taken exactly in the center of the red zone.

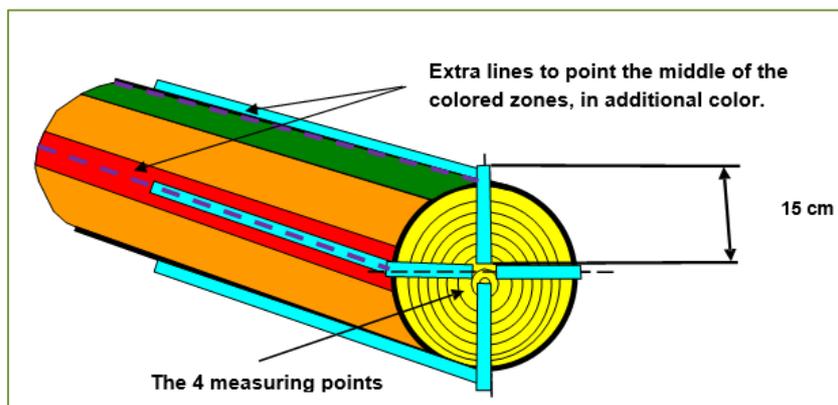


Figure 23: Angle measurements and length of gauge

Angle of cut o	Angle of cut o	Deviation o	Points
≥ 84.24	≥ 95.75	6	0
84.25 – 84.74	95.25 – 95.74	5.5	3
84.75 - 85.24	94.75 – 95.24	5	6
85.25 – 85.74	94.25 – 94.74	4.5	9
85.75 – 86.24	93.75 – 94.24	4	12
86.25 – 86.74	93.25 – 93.74	3.5	15
86.75 - 87.24	92.75 – 93.24	3	18
87.25 – 87.74	92.25 – 92.74	2.5	21
87.75 – 88.24	91.75 – 92.24	2	24
88.25 – 88.74	91.25 – 91.74	1.5	27
88.75 – 91.24		1	30

Table 14: Points for the angle of the cuts

The referee assesses visually where to measure (see figure 24).

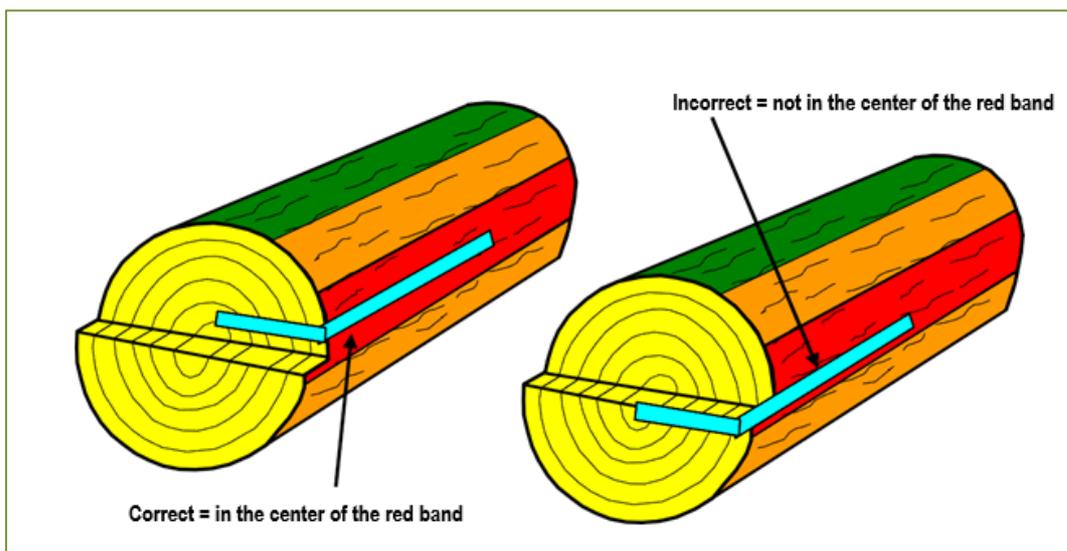


Figure 24: Angle measurement if cuts are misaligned

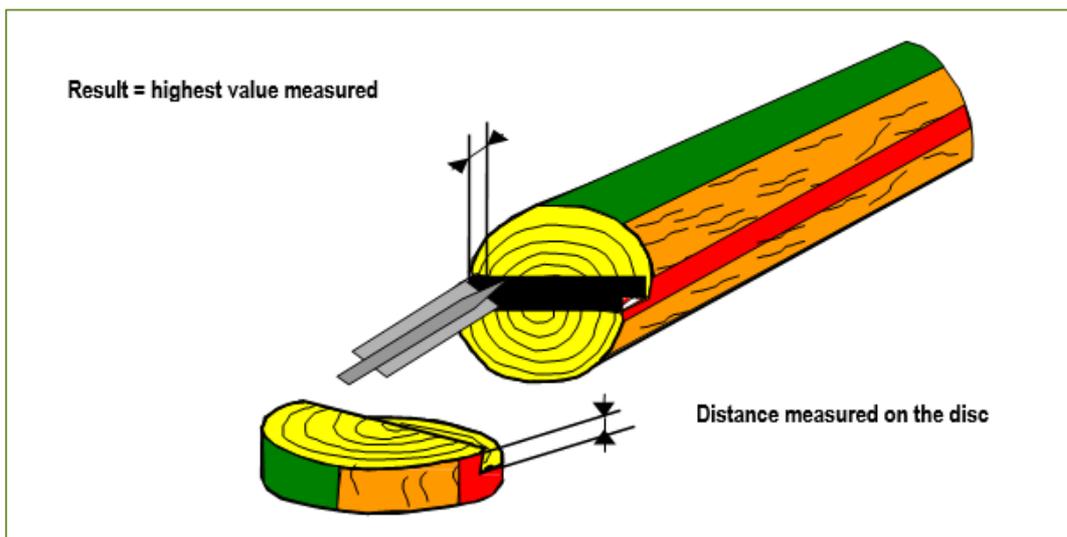


Figure 25: The misalignment is measured on the stem and the disc

Distance between the plane of two cuts (height of the threshold):

The height of the threshold is measured on the bole end and the disc (see figure 25). The highest measurement is entered in mm. Points are awarded according to table 15; the maximum score is 45 points per log.

Height of threshold (mm)	Points		Height of threshold (mm)	Points
> = 15	0		8	21
14	3		7	24
13	6		6	27
12	9		5	30
11	12		4	33
10	15		3	36
9	18		2	40
			< = 1	45

Table 15: Points for misaligned cuts

Penalty points are given in the following cases:

Too early start:

Too early start gives 20 penalty points.

Violations of work safety regulations:

Depends on the violation (see table 4).

Cutting above or below the red line:

It is not permitted to cut above or below the red line (see figure 26, figure 27 and figure 28). If the cuts are not aligned in the marked area, there will be a penalty of 50 points per log.

The referee makes a visual assessment whether the cut is above or below the red line. This must be visible on the stem and / or the disc. The error is marked on the disc.

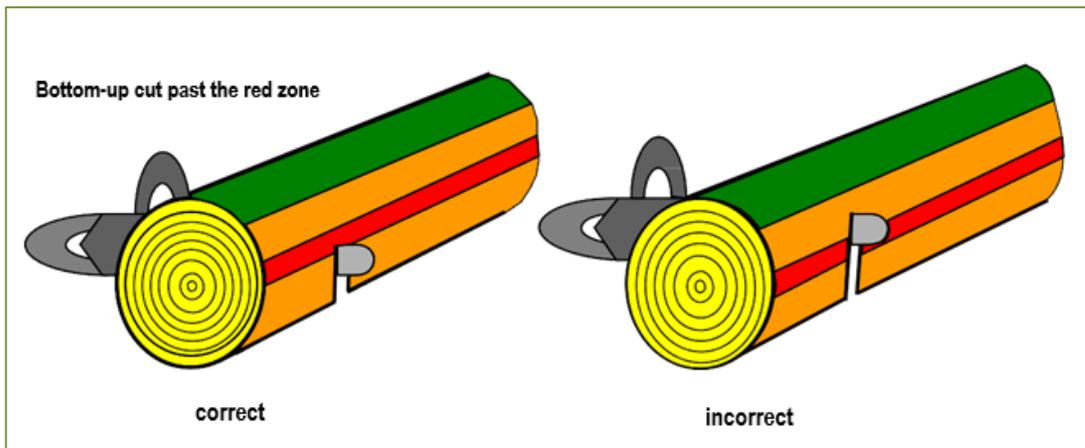


Figure 26: Overcutting the red zone from bottom-up

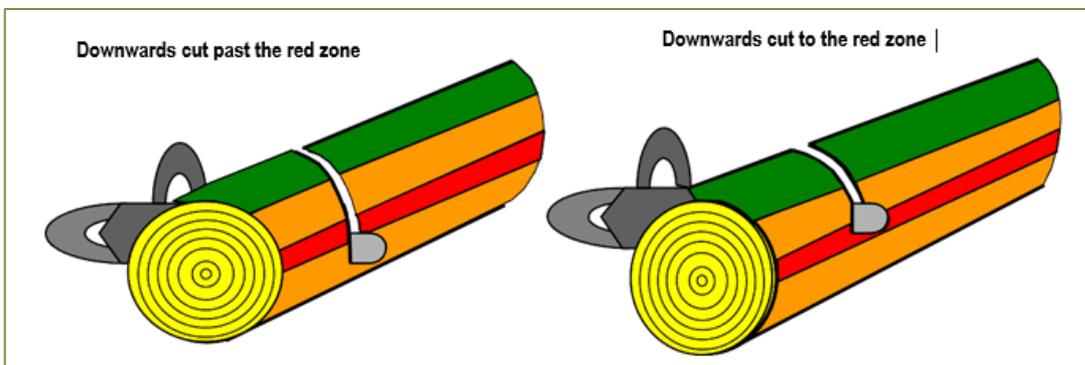


Figure 27: Overcutting the red zone from above

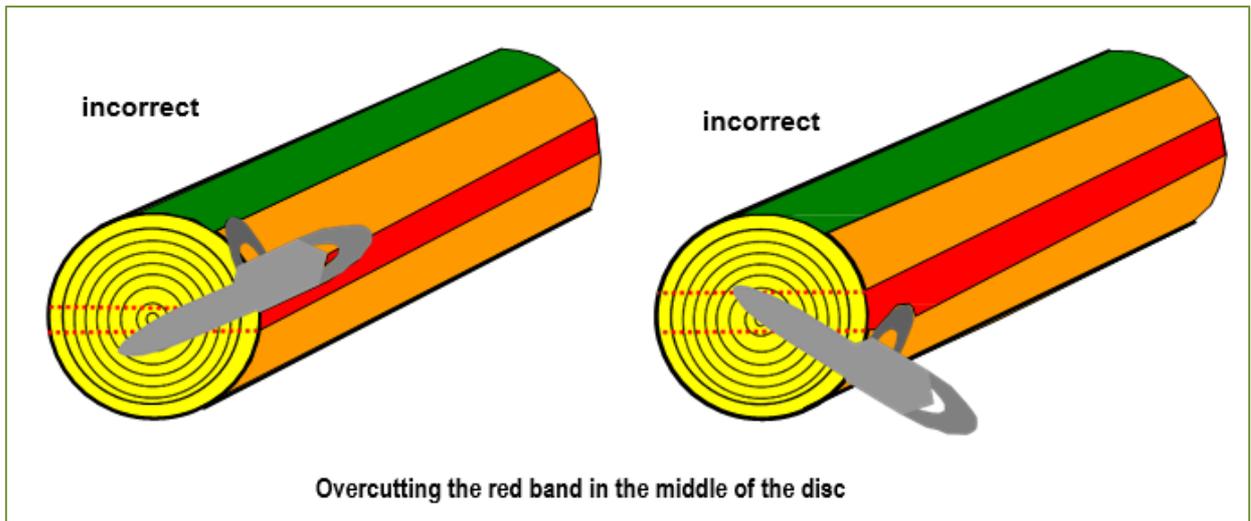


Figure 28: Overcutting / undercutting the red band in the middle of the disc

It is not permitted to cross the red line within the stem. Penalty points are given for visible errors (see figure 28). If an error is detected once the disc has been cut off, this is recorded accordingly. Over-undercutting the red band: The referees have to see this failure on the stem or on the discs! Overcutting the red band in the middle of the disc has to be seen on the wood – the “falling through” is not any mistake.

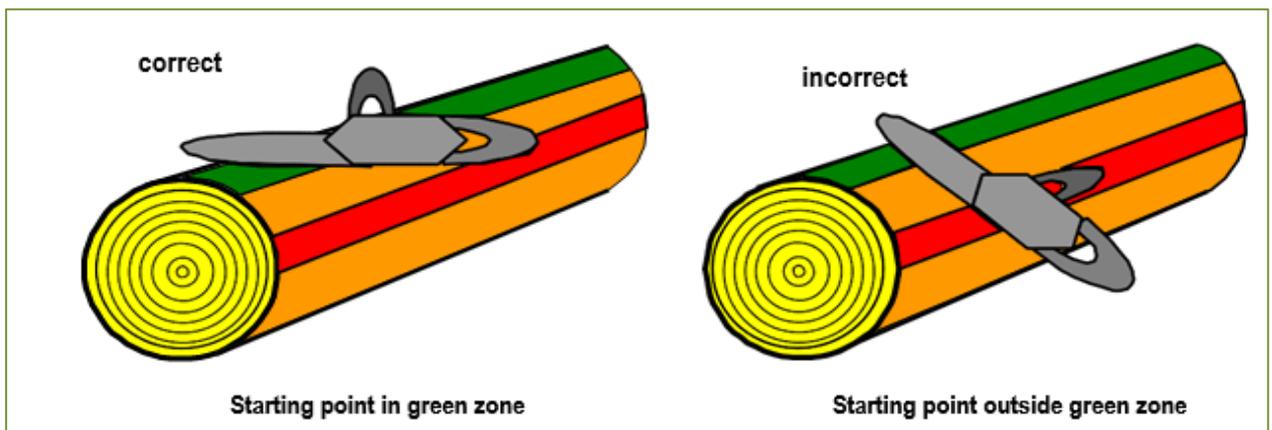


Figure 29: Starting point for downwards cut in green zone

Starting the downwards cut outside the green zone

Penalty points are given for each stem for starting the downwards cut outside the green marking. The starting point is judged by eye (see figure 29).

Chain or cutting apparatus incorrectly fitted

If the chain is jammed, slips off the bar or if the chain cover nut is lost, the contestant may refit the chain and complete the task. This, however, means that he is awarded **zero points** for the "Fitting another chain" discipline and receives **no points** for the **time** in the "Bucking by combined cuts" discipline.

Damage to the stem caused by gashes

Every gashes next to the actual cut (from below or above) which are deeper than 10 mm gives 20 penalty points. These gashes are inspected and measured on both the stem and the disc. It does not matter on which side of the stem or disk the gashes are made.

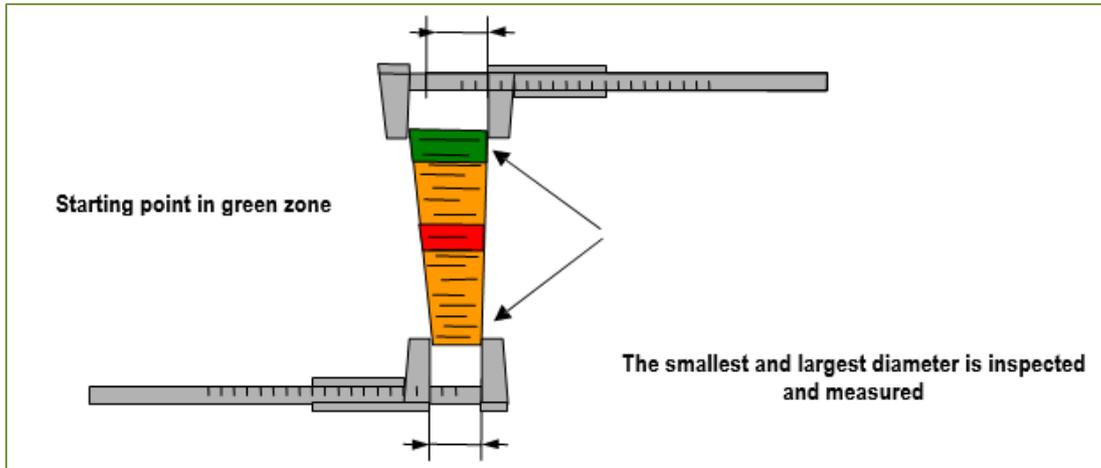


Figure 30: Measuring the thickness of the disc

Thickness of the disc

If the thickness of the disc is less than 30 mm or more than 80 mm, there will be a penalty of 50 points (see Figure 30, measuring accuracy 1 mm)

4. Precision bucking

4.1 General information:

The contestant must cut off a disc from two stems as completely as possible without damaging the board beneath the stem.

The disc must be between 3 cm and 8 cm thick. The disc must be cut at right angles to the longitudinal axis of the stem (see figure 35).

4.2 Preparing the competition site

Two trimmed stems (diameter without bark = 35 cm +/- 1 cm) are placed horizontally and parallel to each other on two boards sunk level with the ground (width 1 m, length min. 3 m) and secured in place (distance between stems = 3 m). The stems must lay directly on the boards (see figure 32 and figure 33).

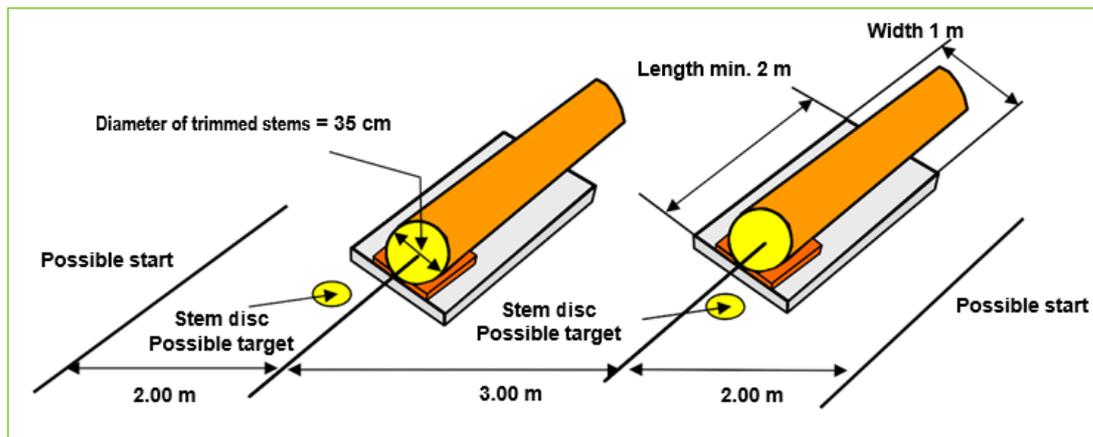


Figure 31: Precision bucking - Setting up equipment

A starting line is marked on the left and the right, 2 m from the center of the stems. The contestants may select whether to start on the left or the right.

A wooden disc is placed near the stem, on which the contestant ends the discipline (see Figure 31).

The side of the stems should be covered with a wet layer of sawdust, 3 cm thick, 20 cm wide and 50 cm long (see figure 32 and figure 33). It is allowed for the competitor to prepare the saw dust himself and to check the height of the sawdust.

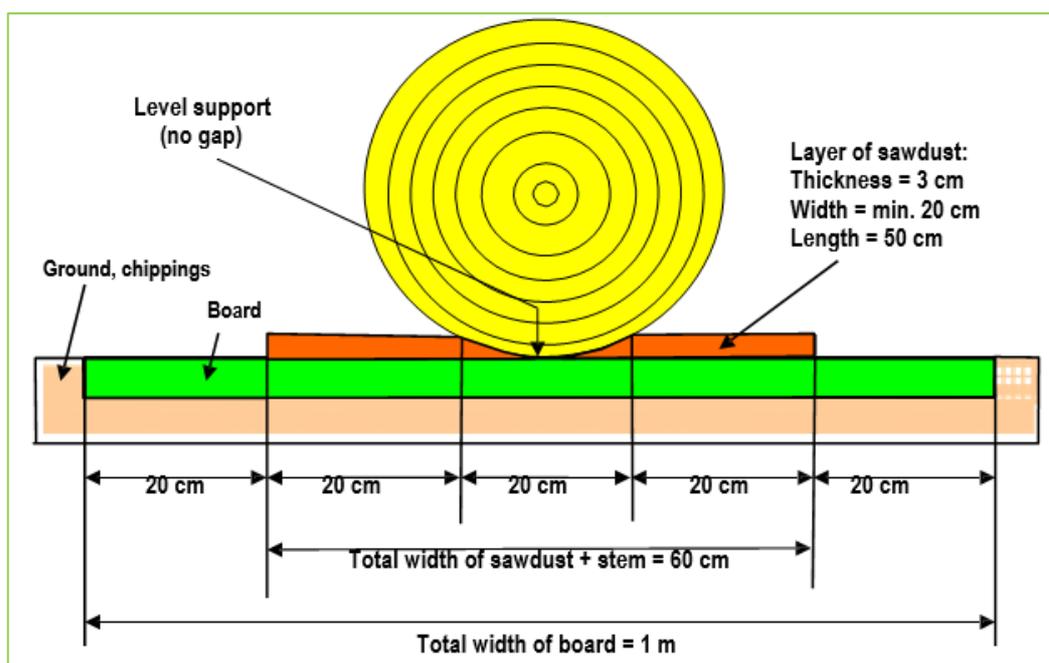


Figure 32: Laying the stem, positioning base board and dimensions of the layer of sawdust

The boards are sunk level into the ground. They can also be laid on the ground and then embedded in chippings.

A stopper is placed at the end of the stem (ca. 10 kg) so that the contestants cannot break off the disc by turning the bar before the disc is fully sawn off (see figure 33).

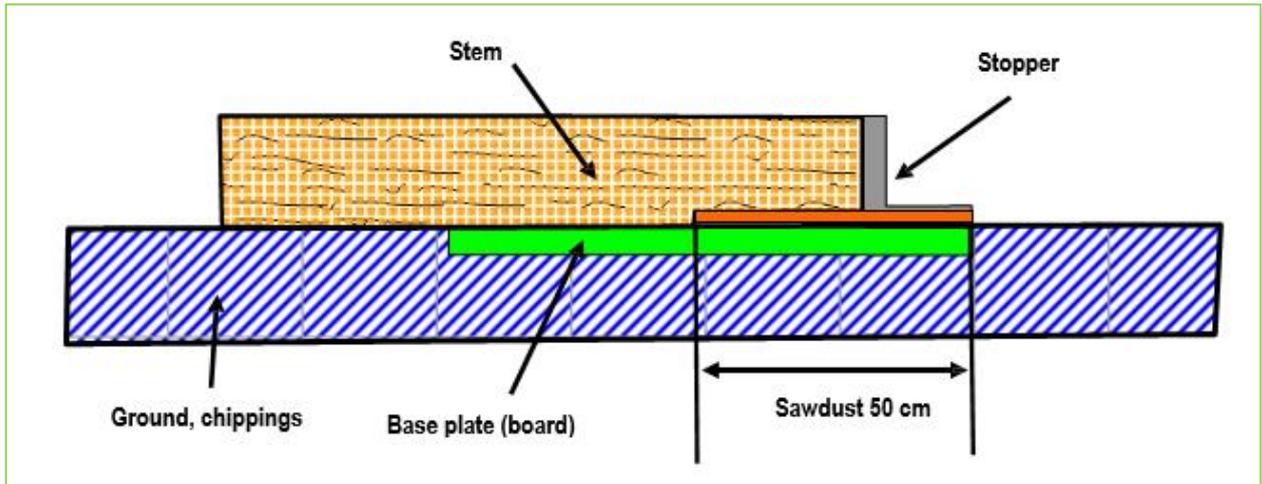


Figure 33: Base board and stopper

If the cut at the end of the stem deviates more than 1° from the right angle to the longitudinal axis, the contestant can demand that the cut should be corrected. He has the same right if there is a disturbing branch.

4.3 Preparing the discipline

Before the competition, the following must be carried out:

- The layer of saw dust is laid in the exact dimensions
- The participant can have a disc cut from the stem if the cut on the stem by more than 1° above or below 90° or if a branch is disturbing
- There must not be any gap between the stem and the board
- The stopper is put in place in the exact middle of the stem
- Any previous damage to the board is marked in color

No cuts may be made where there is previous damage to the board, i.e. the stem may not be pushed so far forwards that the next contestant can cut into the same area of damage on the board (see figure 34).

4.4 Start and finish of the discipline

The discipline starts when a referee gives the signal to start and ends when the contestant stops the chain on the prescribed disc or places the saw on the disc.

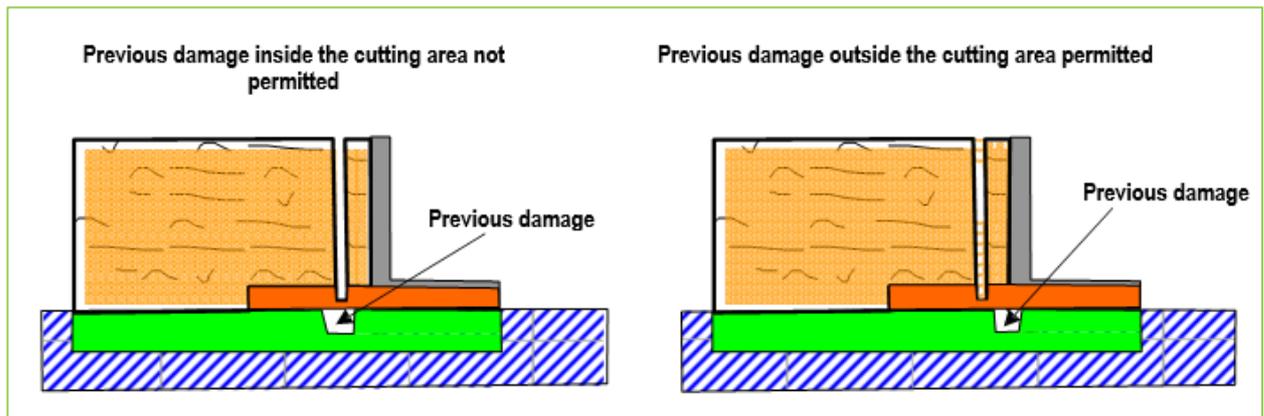


Figure 34: Starting point for new cut when there is previous damage to the board

4.5 Assessing the performance

All measurements are written on the severed discs. The following aspects are assessed:

Incorrectly fitted chain or cutting apparatus:

If the chain is jammed, slips off the bar or if the chain cover nut is lost, the contestant may refit the chain and complete the task. This, however, means that he is awarded zero points for the "Fitting another chain" discipline and receives no points for the time in the "Precision bucking" discipline. All other measurements carried out once the saw is operational again and the discipline has ended are evaluated as usual.

Chainsaw power:

Points for time are awarded on the basis of the cubic capacity of the engine. These are divided into the following groups:

- Group 1: 46 - 55 cm³
- Group 2: over 56 cm³

Deliberate removal of sawdust:

If the contestant deliberately removes the sawdust with his hand, foot or chainsaw (e.g. accelerating, blowing away or pushing away), he is awarded no points for the entire discipline. Also pushing away the sawdust with the body of the chain saw: It is only allowed one movement forward and one movement backward.

If the contestant qualifies in the competition, points are awarded as follows:

- The time required (see table 16)
- Vertical cut (see table 17)
- Precision in cutting (see table 18)
- Penalty points for carrying out the task incorrectly
- Penalty points for crossing over a stem or the stopper or moving the stopper
- Penalty points for violations of work safety regulations (see table 4)

4.6 Steps involved in the precision bucking

The contestant starts the chainsaw (with chain brake on) and places it behind the starting line marked at 2 m from the stem (the contestant is free to select on which side to start; see figure 31).

When the "start" command is given, he has to do the following:

- Go to the first stem
- Cut off a disc while avoiding damage to the base board with the chainsaw
- Go to the second stem (the contestant may not walk over the stem or the stopper; the chain has to come to a halt, but no chain brake necessary)
- Cut off a disc from the second stem
- Stop the chain on the wooden disc provided or place the chainsaw on the disc (time ends)
- Cross the finish line

Once the discipline has ended the contestant waits for instructions.

Once the task has been completed, the referees will meet first, then invite the contestant to overview the measurements. The contestant may stand and watch the measurements without seeing the result exactly (e.g. angle numbers); he may not, however, become involved in establishing the results or in taking the measurements. The contestant is however, entitled to appeal against the results in writing within the prescribed time (30 minutes after the evaluation).

4.7 Measurements - evaluations

The following evaluations are carried out:

Time:

Two stopwatches are used to measure the time (accuracy of 0.1 seconds); the average of both measurements is recorded. Points are awarded as indicated in table 16.

Group 1 / seconds	Group 2 / seconds	Points
etc. +1 point/sec.	etc. +1 point/sec.	
25	22	55
26	23	54
27	24	53
28	25	52
29	26	51
30	27	50
31	28	49
32	29	48
33	30	47
34	31	46
35	32	45
etc. -1 point/sec	etc. -1 point/sec	

Table 16: Points for time

Angle of cut: (3 measurements)

The 3 measurements are taken horizontally and vertically (see figure 35). All 3 results are recorded (accuracy 0.5°). There is a maximum score of 20 points per stem. Decisive is the maximum deviation to 90° 00' (figure 35, table 17).

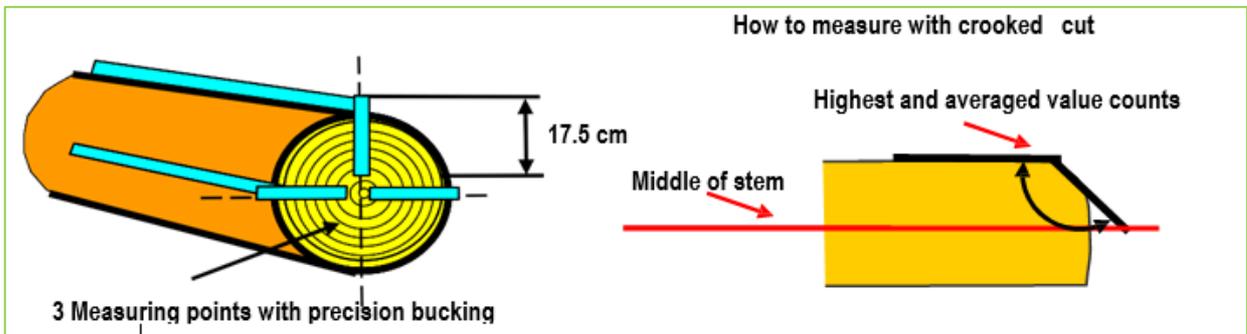


Figure 35: Measuring points for the angle

Angle of cut o	Angle of cut o	Deviation o	Points
< = 85.74	> = 94.25	4.5	0
85.75 – 86.24	93.75 – 94.24	4	2
86.25 – 86.74	93.25 – 93.74	3.5	5
86.75 – 87.24	92.75 – 93.24	3	8
87.25 – 87.74	92.25 – 92.74	2.5	11
87.75 – 88.24	91.75 – 92.24	2	14
88.25 – 88.74	91.25 – 91.74	1.5	17
88.75 – 91.24		1	20

Table 17: Points for the angle of the cut

Precision of the cut:

If the contestant has cut off the disc completely without damaging the board beneath with the chain, 80 points are awarded per stem. If the chain has damaged the board, however, he receives no points for the accuracy of the cut. The part of the stem diameter that is not severed is always measured at right angles to the board at its highest point (see figure 36). The threshold measured at an accuracy of 0.1 mm is rounded up or down to the nearest mm (see table 18).

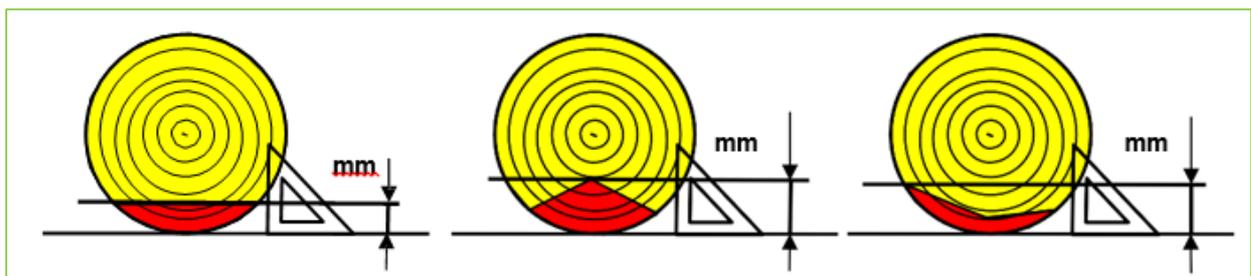


Figure 36: Measuring the threshold (wood that has been left standing)

Thickness of the remaining section (mm)	Points	Thickness of the remaining section (mm)	Points
0	80	20	40
1	78	21	38
2	76	22	36
3	74	23	34
4	72	24	32
5	70	25	30
6	68	26	28
7	66	27	26
8	64	28	24
9	62	29	22
10	60	30	20
11	58	31	18
12	56	32	16
13	54	33	14
14	52	34	12
15	50	35	10
16	48	36	8
17	46	37	6
18	44	38	4
19	42	39	2
		> = 40	0

Table 18: Points for the accuracy of cutting

Penalty points are given in the following cases:

Too early start:

20 penalty points are given if a contestant starts too early.

Stepping over the stem or stopper or moving the stopper

Stepping over the stem or stopper when moving from one stem to another is given a penalty of 50 points per error (see figure 37). As well as moving the stopper.

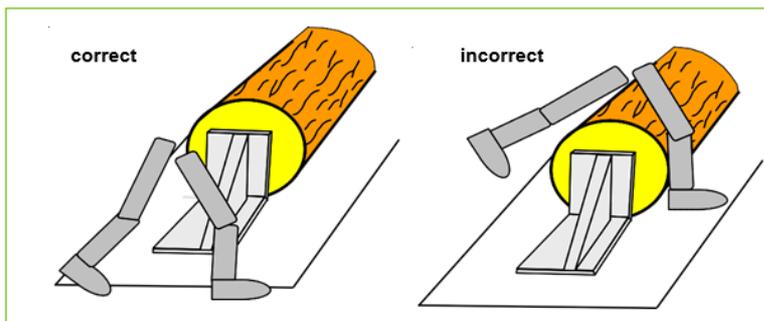


Figure 37: Crossing the stem and / or the stopper

Thickness of disc:

If the thickness of the disc is less than 30 mm or more than 80 mm there is a penalty of 50 points per disc (see figure 30).

Violations of work safety regulations:

Depends on the violation (see table 4).

Removal of sawdust from the plank:

If the contestant deliberately removes the sawdust with his hand, foot or chainsaw he is awarded zero points for the entire discipline.

Faulty chain or cutting apparatus:

If the chain is jammed, slips off the bar or if the chain cover nut is lost, the contestant may refit the chain and complete the task. This, however, means that he is awarded zero points for the "Fitting another chain" discipline and receives no points for the time in the "Precision bucking" discipline.

5. Limbing

5.1 General information:

All contestants are required to limb the same type of wood. A cylindrically trimmed stem is prepared for each contestant for the "limbing" discipline. Several spare stems are prepared as a back-up. The contestant tries to evenly cut off the branches as quickly as possible.

5.2 Preparing the competition site:

The competition site shall be prepared as follows:

- Preparing the course
- Securing the competition site
- Preparing the stems
- Numbering the stems
- Informing the nations of the drilling pattern and the type of wood

5.3 Preparing the discipline

The stems are prepared as follows:

- 30 artificial round branches are inserted into a cylindrically trimmed stem. This is prepared for all contestants in the same branch pattern and the same branch diameter.
- The stems are 6 m long and have a diameter of 14 cm.
- The cylindrically trimmed stems must be of the same type of wood.
- Within the limbing sector, 30 branches with a total diameter of 900 mm are placed on either side of the stem midline at approximately 120° (see figure 38).
- All branches are of the same type of wood and have the same diameter depending on the pattern.
- The branches are inserted into the stems in the same drilling pattern for all competitors. The countries are informed of the drilling pattern and the type of wood at the preparation meeting. The most recent IALC pattern (2016 Poland) will be used.
- The starting line and the finishing line shall be clearly indicated on the stem.
- The starting line must be 0.5 m before the first selected branch and the finishing line must be 0.5 m behind the last selected branch. If more than 1 competitor has to use the same stem, 2 colors for marking starting and finish line have to be used.
- The stems should be secured so they do not roll away and fixed on a height to make sure the highest part of the stem is at 60 cm above the ground.
- The length from the starting line to the finish line is 4.50 m.

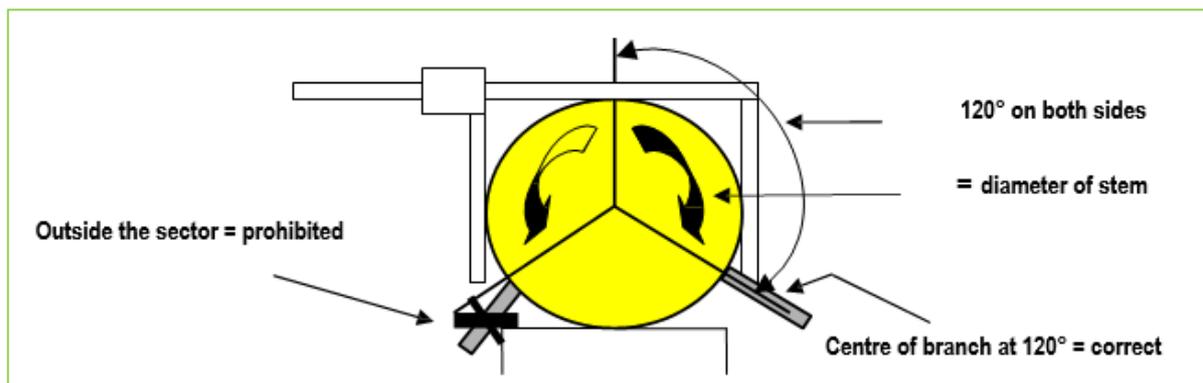


Figure 38: The area to be limbed left and right 120° (corresponds to the stem diameter)

- 1.0 m before the starting line and 0.50 m behind the finish line remains free of branches.

5.4 Start and finish of the discipline

The discipline starts when a referee gives the signal to start and ends when the tip of the bar crosses the finishing line.

The contestant can, however, end the discipline beforehand by shouting "Stop" (e.g. if the chain slips off the bar).

5.5 Assessing the performance

- 200 basic points for the performance
- Time taken (see table 19)
- Penalty points for carrying out the task incorrectly
- Penalty points for violations of work safety regulations (see table 4)
- Starting too early 20 penalty points

5.6 Steps involved

The contestant must try to limb the stem as quickly as possible, without damaging it or leaving any stumps. He must observe the safety regulations in carrying out this task.

The start is at the starting line and the limbing is then carried out in the defined direction. The branches that are cut off are left where they fall.

The contestant enters the starting area at the referee's request, starts the chainsaw and lays it down behind the starting mark on the stem (all parts of the saw must be behind the starting line).

A referee gives the signal to start. The time is measured from the signal to start and ends when the tip of the bar crosses the finishing line. The contestant then stops the saw and waits at the end of the stem for further instructions.

If the chain slips off the bar, the contestant can end the discipline by calling "Stop". He does, however, also have the option of refitting the chain and completing the discipline.

Once the task has been completed, the referees will meet first, then invite the contestant to overview the measurements. The contestant may stand and watch the measurements without seeing the result exactly (e.g. depth of the damage to the stem); he may not, however, become involved in establishing the results or in taking the measurements. The contestant is however, entitled to appeal against the results in writing within the prescribed time (30 minutes after the evaluation).

5.7 Measurements and evaluations

Points are awarded for:

Performance:

The participant is awarded 200 points for the limbing performance.

Time:

The standard time for limbing is 30 seconds, corresponding to a score of 200 points (measuring accuracy = 0.1 seconds). If limbing is completed in less than 30 seconds, 2 points are awarded for every 0.5 seconds under this target. If limbing is completed in over 30 seconds, 2 penalty points are given for every 0.5 seconds over this target (see table 19).

Time for limbing (sec)	Points	Time for limbing (sec)	Points
etc. +2 points/0.5 sec		26,0 – 26,4	216
19,5 – 19,9	242	26,5 – 26,9	214
20,0 – 20,4	240	27,0 – 27,4	212
20,5 – 20,9	238	27,5 – 27,9	210
21,0 – 21,4	236	28,0 – 28,4	208
21,5 – 21,9	234	28,5 - 28,9	206
22,0 – 22,4	232	29,0 - 29,4	204
22,5 – 22,9	230	29,5 - 29,9	202
23,0 – 23,4	228	30,0 - 30,4	200
23,5 – 23,9	226	30,5 - 30,9	198
24,0 - 24,4	224	31,0 - 31,4	196
24,5 – 24,9	222	31,5 - 31,9	194
25,0 – 25,4	220	32,0 – 32,4	192
25,5 – 25,9	218	etc. -2 points/0.5 sec	

Table 19: Points for time limbing

Penalty points are given in the following cases:

Early or wrong start:

20 penalty points are given if a contestant starts too early or starts the wrong way.

Finish and then move back

50 penalty points are given if the contestant finishes first and then decides to move back and correct or otherwise influences his results.

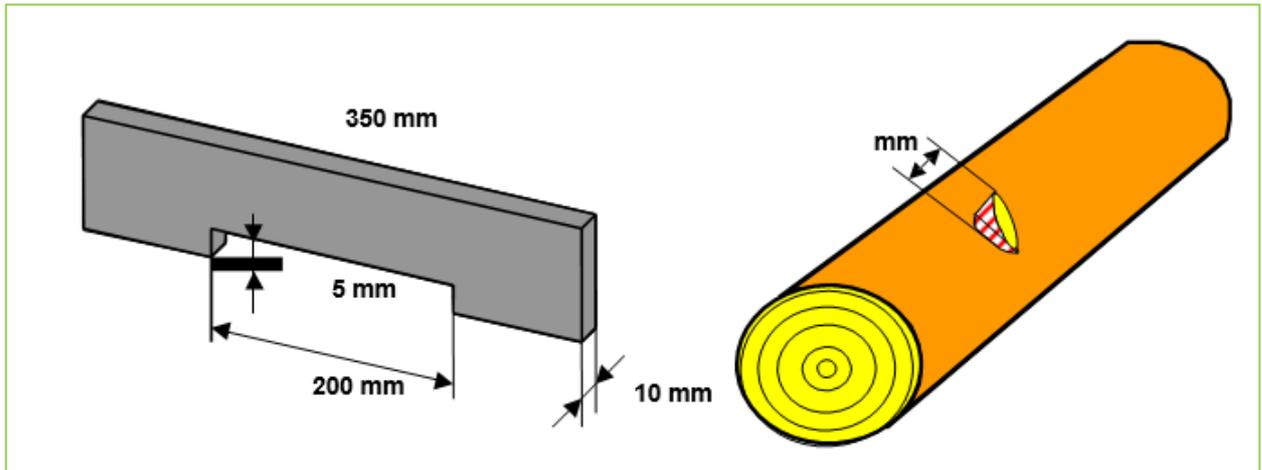


Figure 39: Dimensions of the measuring device and measuring point

Branch stumps:

The highest point of the branch stumps is taken as the result for stumps, without taking into account the center of the branch. Penalty points are given for branch stumps higher than 5 mm. Penalty is 20 points per branch stub (see figure 39 and figure 40).

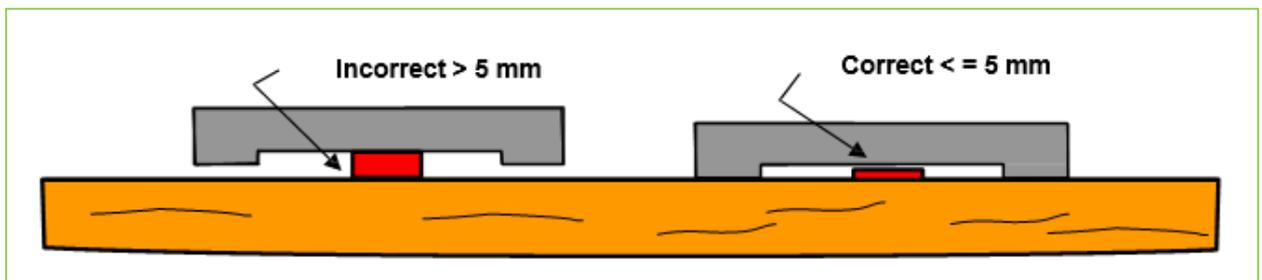


Figure 40: Branch stumps higher than 5 mm are evaluated

Damage to the stem: Any damage to the stem (deeper than 5 mm) is measured and recorded. There are 20 penalty points for each point of damage to the stem. Measurements are taken at right angles to the center of the stem and across the entire cutting surface (see figure 41 and figure 42).

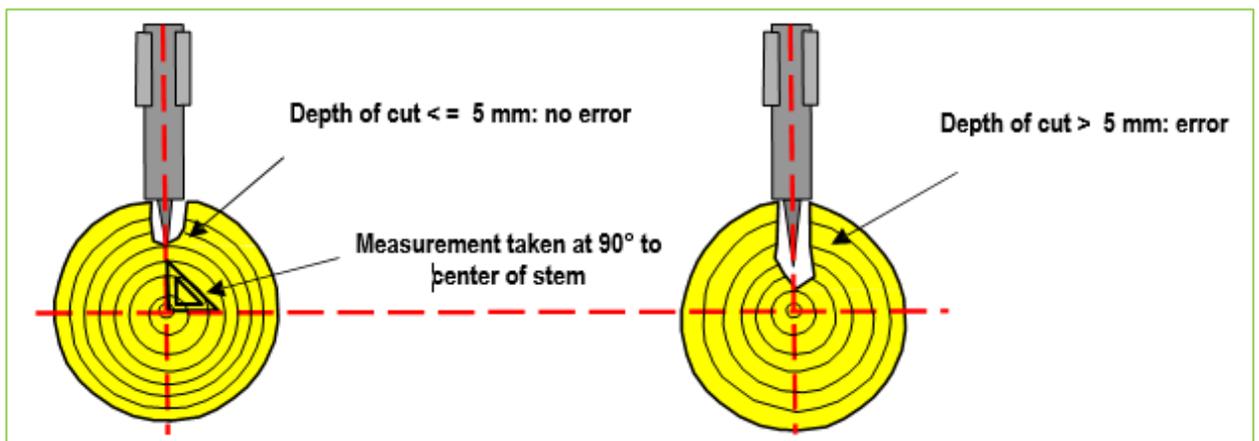


Figure 41: Measuring the cuts that are too deep, at 90° to the center of the stem

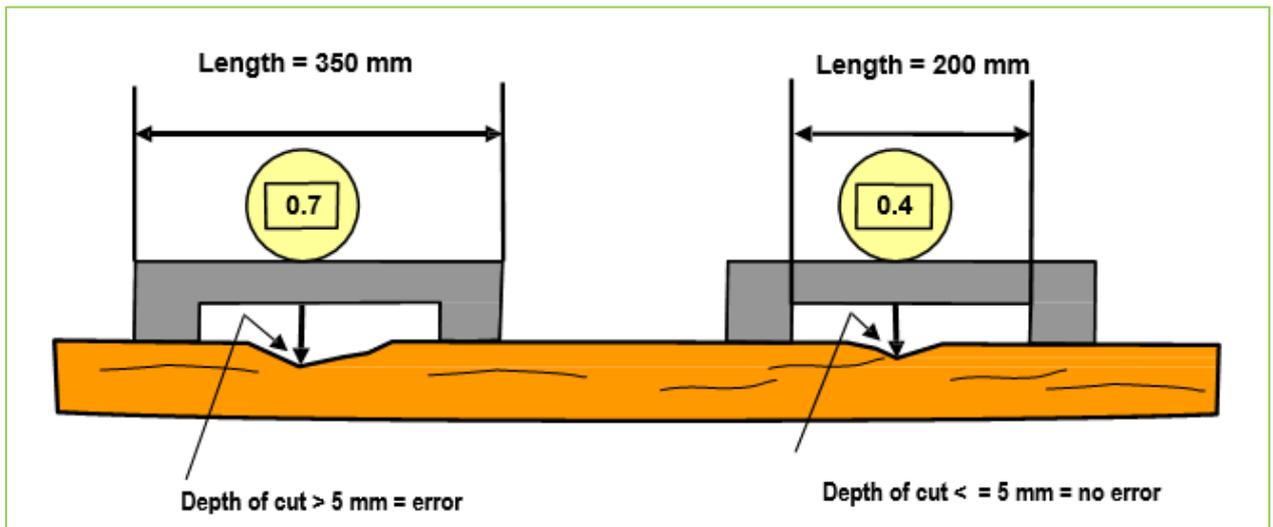


Figure 42: Damage to stem and length of measuring equipment

Damage to wood:

Longitudinal cuts on the stem of 35 cm or more are classified as damage to the stem, regardless of the depth. There is a penalty of 40 points for each point of damage (see figure 43).

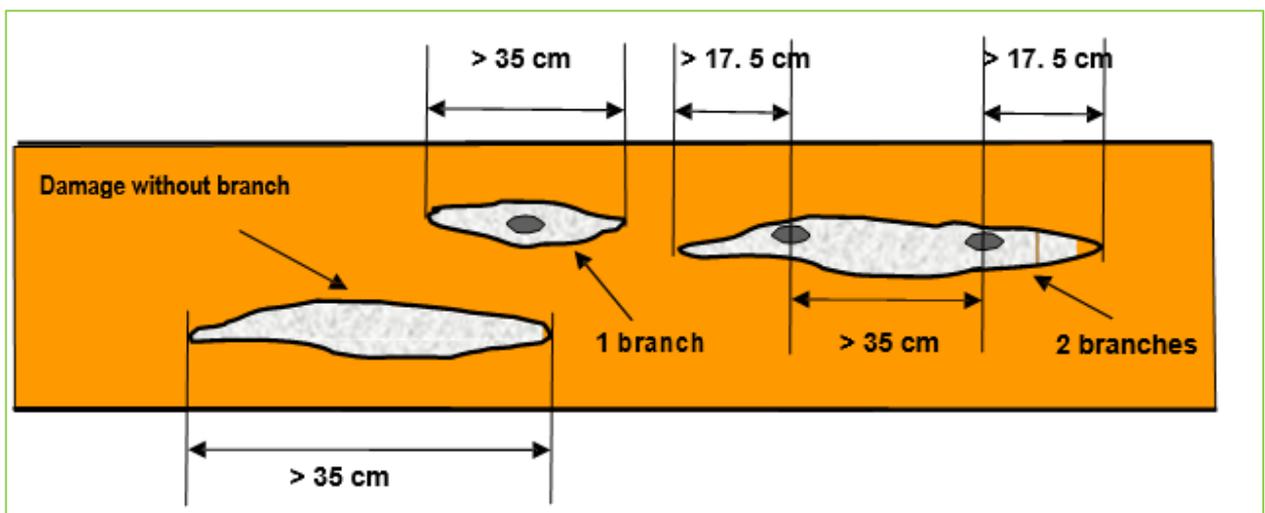


Figure 43: Damage caused during limbing

Branches that are not removed:

The number of branches that are not removed or only partially removed is counted and recorded. 30 points are deducted for each branch that is not sawn off.

Clearing away branches when the chain is running:

Penalty points are given for moving branches when the chain is running. The number of errors is recorded. There are 20 penalty points for each error.

Safety regulations

Violations of work safety regulations: The penalty depends on the violation (see table 4).

Incorrect movement

20 penalty points are given if the contestant walks when the bar is on the same side of the stem as he is. The errors are counted and recorded. It is defined as an error if the contestant raises his whole foot when the bar is on the same side as he is (see figure 44).

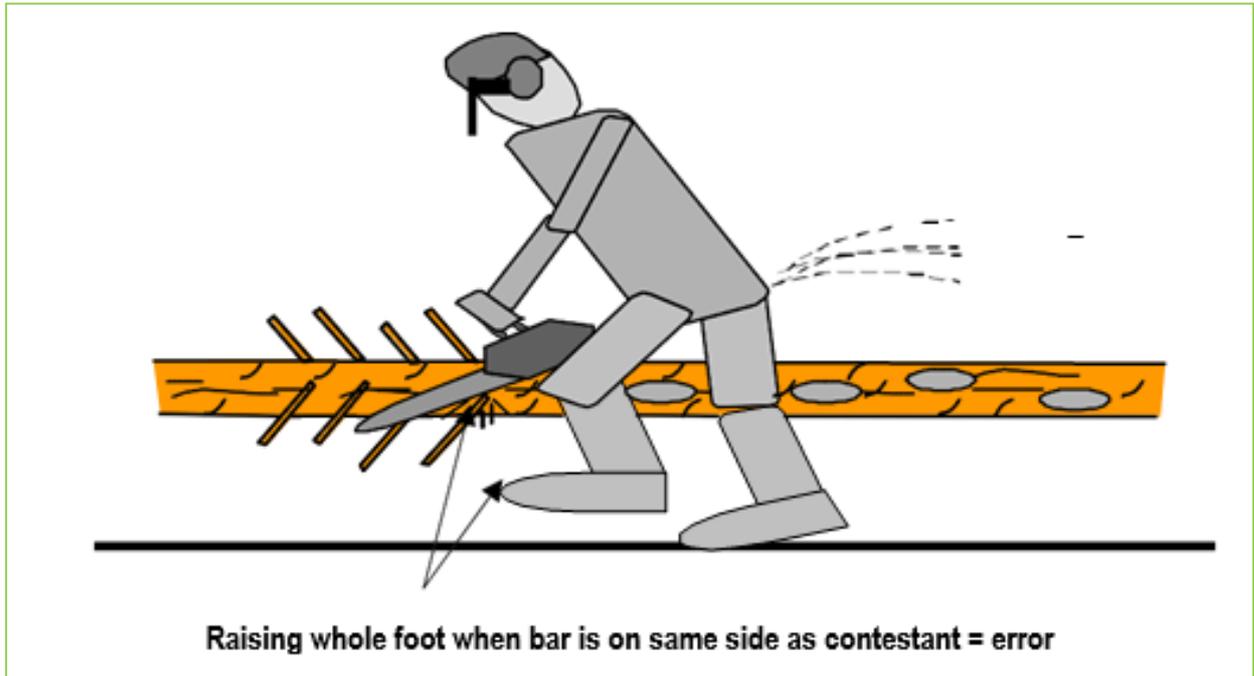


Figure 44: Incorrect movement during limbing (walking)

VIII. PERFORMING THE FORESTRY COURSE

1. Preparation of the Forestry Course

This event is a team contest; all 4 contestants start together. It doesn't take place at the competition site but in a nearby forest.

Before starting the team gets:

- A map of the track: All 16 tasks are marked and the way between
- The single tasks are in the map, with a scale
- 2 Pencils, piece of paper (without markings)
- Relascope tables / yield tables (or at the single task)
- The relascope stick without any marks in the shaft. The kind of relascope will be shown at the preparation meeting. Usually the stick is 1m long and the plate is 4 cm (factor 1).

The teams are checked before starting. If the jury finds something which is not allowed, the team will be disqualified for Forestry Course. (mobile phone, calculator etc.). Also the international referees are not allowed to take mobile phones or communication devices into the course. Both teams and referees will be disqualified if they do.

There will be clear signs on the track to find the tasks:

- The track may be marked with red/white ribbons
- Numbering of the tasks:
 - Pay attention to the black numbers on yellow background
 - The order of the tasks is accidental.
- One tree of the task is marked with blue ribbon (task 1, 2, 5, 8, 9)
- Sample plots are marked with yellow ribbon (task 3, 4, 6, 7, 10)

2

The answer will be written or signed on a single protocol at every task (also starting number and country). The jury at the task gives the protocol to the team. The contestants must write their answer on the protocol.

At every task the team must clearly mark or write the right answer with a pen.

If the answer is given in a different unit (m² instead of hectare, degrees instead of %), this will also be counted as false.

2 referees (Int. / Nat.) watch the contestants at each task and don't support them. They collect the protocols.

The track will be checked by the head of the task and the second international jury member. The head jury may control the event. The members of the head jury have to be introduced to the referees.

Each team is appointed a time limit set by the evaluation group: The average of all times + 20%. The tasks should be solved within this limit – accept adventure and First Aid. If the team exceeds the allowed time, 20 penalty points are given for every minute more.

The minimum size of the stands (task 3, 4, 6, 10) is 0.25 hectare. The sample plot and the trees of tasks 1, 2, 8 and 9 have to be marked noticeably.

At task 8 and 9 the contestant cannot touch the stems. It is forbidden to go with any equipment inside. There has to be a marked distance from min. 2 m between the stem and the contestants.

The second part of the course (tasks 11-16) is dedicated to general knowledge of forest-related tasks.

The length of the course is not set, but announced by the organization, and should not be longer than app. 2 hours.

2 Performance of the Forestry Course

Nr.	Task	points max.
1.	The age of the tree, years	350
2.	The height of the tree above the ground, meters	350
3.	The number of the stems*, number / hectare. The stems belonging to diameter class 7 cm and above shall be included.	350
4.	Basal area*, m ² / hectare. The stems belonging to diameter class 7 cm and above shall be included (Exactness 1 m ²)	350
5.	Slope of terrain*, in %. The estimate of slope shall be based upon the height difference between the two marked points. Slope shall be calculated as a percentage from the horizontal distance (Exactness 1 %)	350
6.	Mean diameter* (breast-height diameter), cm (Exactness 1 cm)	350
7.	Size of the area*, hectare. It is allowed to walk through the area (Exactness 1/100 ha)	350
8.	Volume of the standing tree, m ³ (Exactness 1/100 m ³)	350
9.	Volume of the saw log, m ³ (Exactness 1/100 m ³)	350
10.	Sample Plot*	
	a. total growing stock, m ³ /hectare	450
	b. growing stock of hardwoods; % / hectare or growing stock of softwoods, % / hectare	300
11.	Determining tree species (Latin, English)	350
12.	Determining kinds of wood with bark (Latin, English)	350
13.	Determining animals, hunting (Latin, English)	350
14.	Diseases and pests (Latin, English)	350
15.	Adventure (for example: shooting, national/traditional forest work)	350
16.	First Aid in the forest (situated), prevention of accidents ** (English)	350
	Total	6000

* The contestants should be able to walk inside the area.

**First aid: Only a practical test for the team (no theoretical test). The organizer will inform all what will be in the first aid box (for example in the homepage) and will show it.

*** Volume of the standing tree: there will only be one stem.

The contestants do not need to write the whole name in Latin or English, they only have to fill in the right numbers/letters or set crosses in the right places.

The following lists of trees, wood, animals, pests, diseases may help the competitors to prepare for the competition:

Task 11 Determining tree species (parts of tree with foliage)

Latin	English
Abies alba	Silver fir
Acer campestre	Hedge or field maple
Acer platanoides	Norway maple
Acer pseudoplatanus	Sycamore maple
Alnus glutinosa	Common alder
Alnus incana	Grey alder
Betula (pendula, pubescens)	Birch
Corylus avellana	Hazel nut
Fagus silvatica	Beech (common -)
Fraxinus excelsior	Ash (common-)
Larix sp.	Larch
Picea abies	Spruce
Pinus silvestris	Scots pine
Populus tremula	Aspen
Prunus avium	Wild cherry, bird cherry
Pseudotsuga menziesii	Douglas fir
Quercus petraea	Sessile oak
Quercus robur	English oak
Salix sp.	Willow
Sorbus aucuparia	Rowan, mountain ash
Taxus baccata	Yew
Tilia (cordata, platyphyllos)	Lime / linden (Common-, Silver-)
Ulmus (glabra, arpinifolia)	Elm

Task 12 Determining kinds of wood (log with bark)

Latin	English
Abies alba	Silver fir
Acer sp.	Maple
Alnus sp.	Alder
Betula sp.	Birch
Fagus silvatica	Beech (Common -)
Fraxinus excelsior	Ash
Larix sp.	Larch
Picea abies	Spruce
Pinus silvestris	Scots Pine
Populus tremula	Aspen
Prunus avium	Wild cherry, bird cherry
Pseudotsuga menziesii	Douglas fir
Quercus sp.	Oak
Salix sp.	Willow
Sorbus aucuparia	Rowan, mountain ash
Taxus baccata	Yew
Tilia sp.	Linden, lime
Ulmus (glabra, arpinifolia)	Elm

Task 13 Determining animals (body, head, trophy, footprint/track)

The animals should be determinable also for students from countries where the animal does not appear in the wild.

Latin	English
Accipiter nisus	sparrow hawk
Alces alces	elk, moose
Anas platyrhynchos	mallard (duck)
Aquila chrysaetos	golden eagle

Buteo buteo	common buzzard
Bubo bubo	eagle owl
Canis lupus	gray wolf
Capra ibex	ibex, rock goat
Capreolus capreolus	roe (deer, -buck)
Castor sp.	beaver
Cervus elaphus	red deer
Columba palumbus	common wood-pigeon
Corvus corone corone	carrion crow
Dama dama	fallow-deer
Dendrocopos major	spotted woodpecker
Dryocopus martius	black woodpecker
Falco peregrinus	peregrine (falcon)
Falco tinnunculus	kestrel
Felis silvestris	wildcat
Garrulus glandarius	Eurasian jay
Lepus europaeus	brown hare
Lynx lynx	lynx
Lyrurus tetrix	black cock
Martes (- martes, - foina)	marten (pine -, stone -)
Meles meles	badger
Mustela nivalis	weasel
Perdix perdix	grey partridge
Pheasianus colchicus	ring-necked pheasant
Pica pica	black-billed magpie
Picus viridis	green woodpecker
Procyon lotor	raccoon
Rangifer tarandus	reindeer
Rupicapra rupicapra	chamois
Sciurus vulgaris	Eurasian red squirrel
Sus scrofa	wild boar
Tetrao urogallos	capercaillie, mountain-cock
Tetrastes bonasia	hazel-hen
Ursus arctos	brown bear
Vulpes vulpes	(European) fox

Task 15 Recognizing pests, diseases and damages

Latin	English
Blastophagus minor	Lesser pine-shoot beetle
Blastophagus (Myelophilus) piniperda	Large / common pine-shoot beetle
Ceratocystis sp.	Blue stain
Cronartium flaccidum	Scots pine blister rust
Fomes annosus	Butt rot
Hylobius abietis	Large pine weevil
Ips typographus	8-toothed bark beetle
Lachnellula willkommii	Larch cancer
Pityogenes chalcographus	6-toothed spruce bark beetle
Xyloterus lineatus	Spruce ambrosia beetle
N.N.	Damages caused by antlers (fraying=rubbing against the bark)
N.N.	Damages caused by mammals (f.e.caused by biting =browse impact)

3 Evaluation of the Forestry Course

3.1 Evaluation

The right solutions will be presented to all teams afterwards. The organizing country makes a proposal for the evaluation of every single task (evaluation table). The head jury will check both and decides about the scoring.

- Steps of 25 and/or 50 points make sense.
- In most of the estimating/counting tasks a difference to the right solution of more than 50% will mean 0 points at this task.
- Total score is 6000 points. These points should be similar to the technical events (1.500 points per contestant).
- Points for time: The times of all teams are counted together, the average plus 20% is the limit. Each minute more than this limit will be awarded with 20 points minus.

3.2 Even result

- In the case of even results the winner is the team with the better time.
- If this result is the same too, the winner is the team with the higher points by task 10 a Sample plot total growing stock.

Appendix I Responsibilities of each of the jury members

In case if there are 3 referees; otherwise (only 2) one referee combines Number 1 and 3.

Jury member 1: Secretary

Jury member 2: Starter / timekeeper/ assisting jury member 3 / contact person for contestants

Jury member 3: Timekeeper / operating measuring equipment

Responsibilities jury member 1: secretary

- Completing the match report
- Tracking finished and upcoming contestants (in consultation with other jury members)
- Monitoring foot faults and other faults specific to the exercise (for example: early start)

Responsibilities jury member 2: timekeeper

- Spokesman
- Introducing the contestants to the arena and explaining the rules and procedures
- Checking the track along with the contestant
- Responsible for start procedure
- Tracking time
- Monitoring foot faults
- Marking findings and faults on the disk / trunk

Responsibilities jury member 3: timekeeper

- Performing safety procedures on the track (before contestant enters)
- Tracking time
- Monitoring specific faults (for example: early start)
- Measuring the result. Contestant is asked to supervise the way of measuring without being able to view his/her score.

Sequence of jury tasks

- Contestant is being called by jury member 2.
- Jury member 1 notes contestant data (name and number)
- Jury member 2 checks the track along with the contestant
- Jury member 3 performs safety procedures on the track and checks for any technical defects
- Jury member 2 gives warm-up and start signal
- During the exercise jury member 1 is situated behind the contestant, jury member 2 in front of the contestant and jury member 3 alongside the contestant
- Once the contestant finished the exercise the jury members go into deliberation (contestant is not involved in this conversation). Jury member 1 makes notes of faults, if any.
- Jury member 3 positions himself at one side of the trunk and places his measuring tools on the trunk while covering the score with his hand. During this first step of the measuring moment the contestants are positioned on the other side of the trunk. Once the measuring tools are placed the contestant is asked for approval about the way of measuring, without having a view on the (covered) score.
- Jury member 3 marks the findings on the disk
- Jury member 1 marks the findings on paper

The same procedure is repeated for every measuring moment to prevent discussions on measuring accuracy and to ensure each contestant is treated equally and judged in the same way.

Appendix II Protocols for the disciplines

Set of rules for the European Students Championships in Forestry Skills

escfs protocol 1

Evaluation of Fitting another chain		Startnumber:		
Contestant:		Nation:		
Group of chain saw (type of bar fixture)		I (two nuts)	II (one or no nut)	
No.	Evaluation	Unit		Results
1	Time <i>(measuring 0.01 sec)</i>	Seconds:	Sec.	
2	Incomplete fitting of cutting apparatus <i>0 points for this discipline</i>	No	yes	
3	Dropping any part of the chain saw or tools on the ground <i>20 pts.</i>	No	yes	
4	The bar was not turned <i>50 pts.</i>	No	yes	
5	Chain not correctly tightened <i>50 pts.</i>	No	yes	
6	Too early start or incorrect stopping <i>20 pts.</i>	No	yes	
7	Adjusting the cutting apparatus after the performance <i>50 pts.</i>	No	yes	
8	Appearance on the competition site without permission <i>50 pts.</i>	No	yes	
9	Injury that does not require medical care <i>20 pts.</i>	No	yes	
10	Injury that requires medical care <i>50 pts.</i>	No	yes	
11	Chain gets stuck or slips off the bar or a nut drops to the ground in Bucking by combined cuts or Precision bucking	No	yes	
12	First-aid kit missing - no permission to start <i>50 pts. And 5 min to find is</i>	No	yes	
13	Manipulation any thing after carrying out the finishing/tims topping action of the discipline <i>50 pts.</i>	No	yes	
TOTAL POINTS				
SCORE FOR FITTING ANOTHER CHAIN				
Signature of contestant		Signature of judge		Signature of the head of the calculation group
Time		Time		Time

Set of rules for the European Students Championships in Forestry Skills

escfs protocol 2

Evaluation of Bucking by combined cuts		Startnumber:		
Contestant:		Nation:		
Group of chain saw (cubic capacity)		I (46 - 55 cm3)		II (over 55 cm3)
No.	Evaluation	Unit	Results	Points
1	Time	Seconds:		
	<i>(measuring 0.01 sec)</i>			
2	Angle of the cut	stem 1	degree	
	<i>rounded to 0.5 degree</i>	stem 2	degree	
3	Height of the threshold	stem 1	mm	
	<i>1 mm</i>	stem 2	mm	
4	cutting through the colour mark from below	1st stem	no	yes
	<i>50 pts.</i>	2nd stem	no	yes
5	Incorrect starting of the upper cut, outside the marking	1st stem	no	yes
	<i>50 pts.</i>	2nd stem	no	yes
6	Disc thinner than 30 mm or wider than 80 mm	1st stem	no	yes
	<i>50 pts.</i>	2nd stem	no	yes
7	The disk doesn't fall to the ground	1st stem	no	yes
	<i>0 points for the stem</i>	2nd stem	no	yes
8	Cutting through the colored mark from above	1st stem	no	yes
	<i>50 pts.</i>	2nd stem	no	yes
9	Damage to stem deeper than 10 mm	1st stem	no	yes
	<i>20 pts.</i>	2nd stem	no	yes
10	Too early start	no	yes	
	<i>20 pts.</i>			
11	Entering the site without permission	no	yes	
	<i>50 pts.</i>			
12	Working without protective gear	no	yes	
	<i>20 pts. Each</i>			
13	Incorrectly starting the saw	no	yes	
	<i>30 pts.</i>			
14	Touching chain when engine is running	no	yes	
	<i>50 pts.</i>			
15	Changing positions when chain is running	no	yes	
	<i>20 pts. Each</i>			
16	Failing to start the saw within 5 minutes	no	yes	
	<i>30 pts.</i>			
17	Sawing with one hand when chain is running	no	yes	
	<i>20 pts. Each</i>			
18	Injury not requiring medical attention	no	yes	
	<i>20 pts.</i>			
19	Injury requiring medical attention	no	yes	
	<i>50 pts.</i>			
20	Chain gets stuck or slips off the bar in Bucking by combined cuts	no	yes	
21	First-aid kit missing - no permission to start	no	yes	
	<i>50 pts. And 5 min to find it</i>			
22	Adjusting anything by the contestant after the performance	no	yes	
	<i>50 pts.</i>			
23	Manipulation any thing after carrying out the finishing/timber topping action of the discipline	no	yes	
	<i>50 pts.</i>			
TOTAL POINTS				
SCORE FOR BUCKING BY COMBINED CUTS				
Signature of contestant		Signature of judge		Signature of the head of the calculation group
Time		Time		Time

Set of rules for the European Students Championships in Forestry Skills

escfs protocol 3

Evaluation of Precision bucking		Startnumber:			
Contestant:		Nation:			
Group of chain saw (cubic capacity)		I (46 - 55 cm ³)		II (over 55 cm ³)	
No.	Evaluation	Unit		Result	Points
1	Time <i>(measuring 0.01 sec)</i>	Seconds:			
2	Angle of the cut <i>rounded to 0.5 degree</i>	stem 1	degree		
		stem 2	degree		
3	Height of the threshold <i>1 mm</i>	stem 1	mm		
		stem 2	mm		
4	Cut into the board <i>no points for the accuracy</i>	1st stem	no	yes	
		2nd stem	no	yes	
5	Disc thinner than 30 mm or wider than 80 mm <i>50 pts.</i>	1st stem	no	yes	
		2nd stem	no	yes	
6	Crossing the stem or the stopper <i>50 pts.</i>	1st stem	no	yes	
		2nd stem	no	yes	
7	Removing the sawdust <i>0 points for the discipline</i>	1st stem	no	yes	
		2nd stem	no	yes	
8	Too early start <i>20 pts.</i>	no	yes		
9	Entering the site without permission <i>50 pts.</i>	no	yes		
10	Working without protective gear <i>20 pts. Each</i>	no	yes		
11	Incorrectly starting the saw <i>30 pts.</i>	no	yes		
12	Touching chain when engine is running <i>50 pts.</i>	no	yes		
13	Changing positions when chain is running <i>20 pts. Each</i>	no	yes		
14	Failing to start the saw within 5 minutes <i>30 pts.</i>	no	yes		
15	Sawing with one hand when chain is running <i>20 pts. Each</i>	no	yes		
16	Injury not requiring medical attention <i>20 pts.</i>	no	yes		
17	Injury requiring medical attention <i>50 pts.</i>	no	yes		
18	Chain gets stuck or slips off the bar in Bucking by combined cuts	no	yes		
19	First-aid kit missing - no permission to start <i>50 pts. And 5 min to find is</i>	no	yes		
20	Adjusting anything by the contestant after the performance <i>50 pts.</i>	no	yes		
21	Manipulation any thing after carrying out the finishing/tims topping action of the discipline <i>50 pts.</i>	no	yes		
TOTAL POINTS					
SCORE FOR BUCKING BY COMBINED CUTS					
Signature of contestant		Signature of judge		Signature of the head of the calculation group	
Time		Time		Time	

Set of rules for the European Students Championships in Forestry Skills

escfs protocol 4

Evaluation of Undercut and Felling cut		Startnumber:			
Contestant:		Nation:			
No.	Evaluation	Unit		Results	Points
1	Time <i>(measuring 0.01 sec)</i>	Seconds:			
2	Deviation from felling direction <i>1 cm</i>	cm			
3	Depth of the under cut <i>1 cm</i>	cm			
4	Angle of undercut <i>rounded to the nearest degree</i>	degree			
5	Width of the holding bridge <i>0,1 mm, (0,0 mm means no points for the discipline)</i>	min.	mm		
		max.	mm		
6	Height difference between the bottom of the sink and the felling <i>0,1 mm</i>	min.	mm		
		max.	mm		
7	If the upper or the lower cut does not end in one line <i>15mm <</i>	1mm			
		5 pts			
8	Split appears, longer than 5 cm <i>visual determined</i>	1 cm			
		1 pts			
9	Too early start <i>20 pts.</i>	no	yes		
10	Stump higher than 30 cm above ground <i>100 pts.</i>	no	yes		
11	Incorrect felling, hinge not ready at start felling cut or making <i>the hinge in 1 cut, or STOP</i> <i>50 pts.</i>	no	yes		
12	Using of (painted) marks (and sticks) <i>20 pts</i>	no	yes		
13	Incorrect retreat from the tree and/ or not looking up. <i>20 pts. Each</i>	no	yes		
14	Entering the site without permission <i>50 pts.</i>	no	yes		
15	Working without protective gear <i>20 pts. Each</i>	no	yes		
16	Incorrectly starting the saw <i>30 pts.</i>	no	yes		
17	Touching chain when engine is running <i>50 pts.</i>	no	yes		
18	Changing positions when chain is running <i>20 pts. Each</i>	no	yes		
19	Failing to start the saw within 5 minutes <i>30 pts.</i>	no	yes		
20	Sawing with one hand when chain is running <i>20 pts. Each</i>	no	yes		
21	Injury not requiring medical attention <i>20 pts.</i>	no	yes		
22	Injury requiring medical attention <i>50 pts.</i>	no	yes		
23	First-aid kit missing - no permission to start <i>50 pts. And 5 min to find it</i>	no	yes		
23	Competitor has to stop the performance at signal of the judge	no	yes		
24	Adjusting anything by the contestant after the performance <i>50 pts.</i>	no	yes		
25	Manipulation anything after carrying out the finishing/tim topping action of the discipline <i>50 pts.</i>	no	yes		
TOTAL POINTS					
SCORE FOR BUCKING BY COMBINED CUTS					
Signature of contestant		Signature of judge		Signature of the head of the calculation group	
Time		Time		Time	

Set of rules for the European Students Championships in Forestry Skills

escfs protocol 5

Evaluation of Limbing			Startnumber:			
Contestant:			Nation:			
No.	Evaluation		Unit		Results	Points
1	Initial points for the performance of work					200
2	Time <i>(measuring 0.01 sec)</i>		Seconds:			
3	Branch stubs > 5mm <i>20 pts. Each</i>		number			
4	Damage to the stem > 5mm <i>20 pts. Each</i>		number			
5	Wood damage of 35 cm or more <i>40 pts. Each</i>		number			
6	Unlimbed branches <i>30 pts. Each</i>		number			
7	Walking while the chain is running and the chain is on the same side of the stem <i>20 pts. Each</i>		number			
8	Moving branches by hand while the chain is running <i>20 pts. Each</i>		number			
9	Too early start <i>20 pts.</i>		no	yes		
10	Entering the site without permission <i>50 pts.</i>		no	yes		
11	Working without protective gear <i>20 pts. Each</i>		no	yes		
12	Incorrectly starting the saw <i>30 pts.</i>		no	yes		
13	Touching chain when engine is running <i>50 pts.</i>		no	yes		
14	Changing positions when chain is running <i>20 pts. Each</i>		no	yes		
15	Failing to start the saw within 5 minutes <i>30 pts.</i>		no	yes		
16	Sawing with one hand when chain is running <i>20 pts. Each</i>		no	yes		
17	Injury not requiring medical attention <i>20 pts.</i>		no	yes		
18	Injury requiring medical attention <i>50 pts.</i>		no	yes		
19	First-aid kit missing - no permission to start <i>50 pts. And 5 min to find is</i>		no	yes		
20	Adjusting anything by the contestant after the performance <i>50 pts.</i>		no	yes		
21	Manipulation any thing after carrying out the finishing/tims topping action of the discipline <i>50 pts.</i>		no	yes		
TOTAL POINTS						
SCORE FOR BUCKING LIMBING						
Signature of contestant			Signature of judge		Signature of the head of the calculation group	
Time			Time		Time	

escfs protocol 6

Appeal		Starting number	
Contestant:		Nation:	
Time and date of the appeal:			
Discipline:			
Reason for the appeal:			
Decision of the head jury			
Signature of contestant	Signature of the team leader		Signature of a member of the head jury at hand in
			Signature of the head jury after decision
time	time		time

escfs protocol 7

Chain saw check		Startnumber:		
Contestant:		Nation:		
Group of chain saw (type of bar fixture)		I (two nuts)	II (one or no nut)	
Group of chain saw (cubic capacity)		I (46 - 55 cm3)	II (over 55 cm3)	
no.	Parameter	Result		Notes
1	Nuts and bolts are original	yes	no	
2	Sprocket and holes inside have not been manipulated	yes	no	
3	Chain catcher is valid	yes	no	
4	Chain tensioner is original	yes	no	
5	Chain break is valid	yes	no	
6	Handcover is valid	yes	no	
7	Lever (on-off) is valid	yes	no	
8	other security relevant parts are valid	yes	no	
9	Teeth of the chains are minimum 3mm long at the smallest	yes	no	
10	All chain links are original	yes	no	
11	The bars have not been manipulated (e.g. holes has been whided or markings)	yes	no	
12	The chain is sharpened with standard, round file, it is not ar 'race chain' and a 'kanten schliefer' is not used	yes	no	
13	Permission to use in competition	yes	no	
Further notes:				
Signature of contestant, I agree the chainn saw is satndard and not manipulated		Signature of judge		
Time		Time		