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the International Labour Organization

EU-ILO Project
ENHANCING THE LABOUR ADMINISTRATION CAPACITY
TO IMPROVE WORKING CONDITIONS AND TACKLE UNDECLARED WORK

Training for trainers
OSH - risk management (assessment and control)
methodologies and labour inspectors' gesture

PART II

OCCUPATIONAL SAFETY AND HEALTH IN FORESTRY

November 2018

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Supporting tools:

ILO Convention No. 184 on Safety and Health in Agriculture of 2001

available at https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C184

The European Framework Directive on Safety and Health at Work (Directive 89/391 EEC) available at <https://osha.europa.eu/en/legislation/directives/the-osh-framework-directive/the-osh-framework-directive-introduction>

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EU-ILO Project

«Enhancing the labour administration capacity to improve working conditions and tackle undeclared work»

Module 4

EU and International Sectoral Labour Standards on OSH

Agriculture / Forestry

Training for trainers

“OSH risk management methodologies and labour inspectors’ gesture in Agriculture / Forestry”

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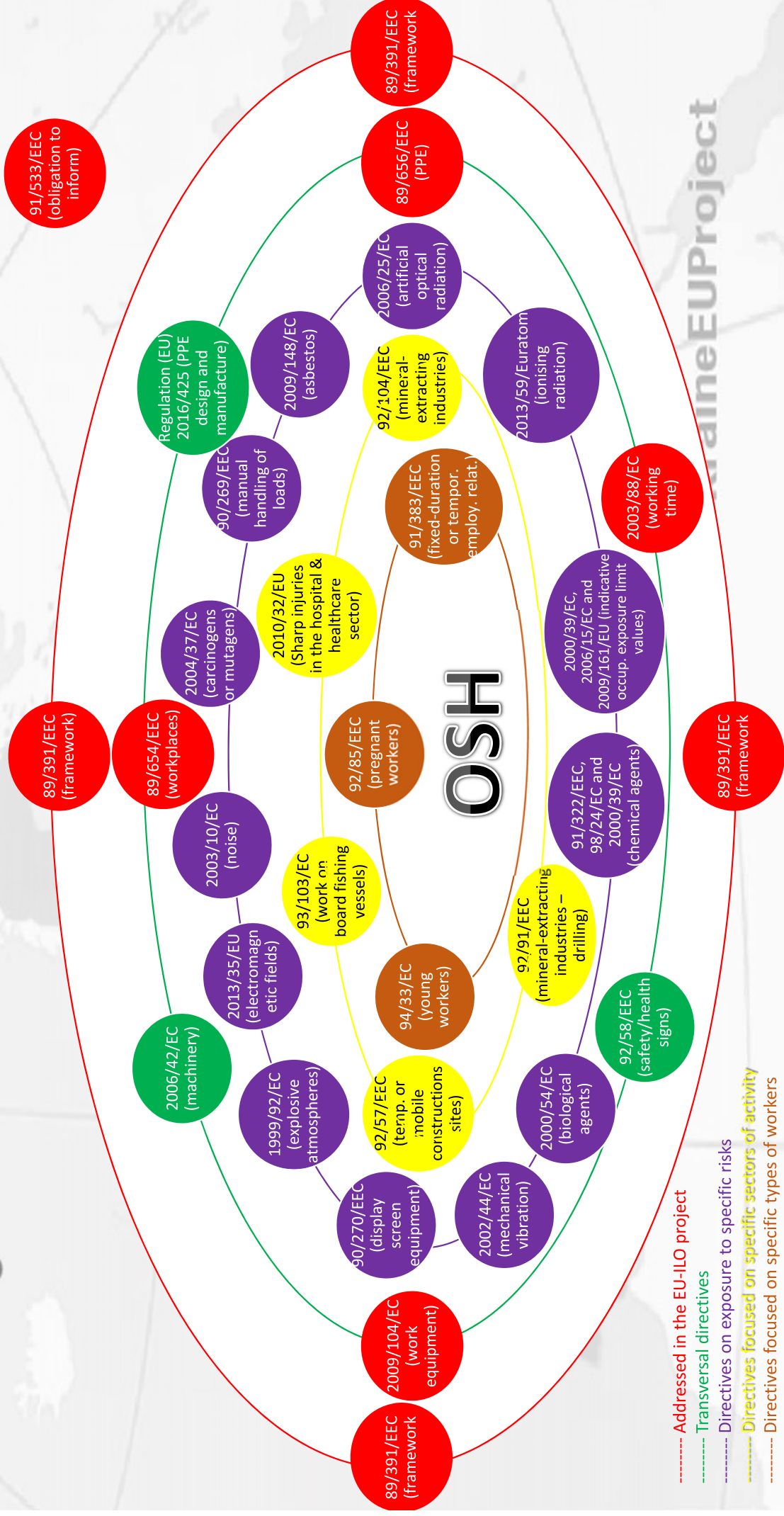
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EU OSH legal framework
on Agriculture and
Forestry Sectors

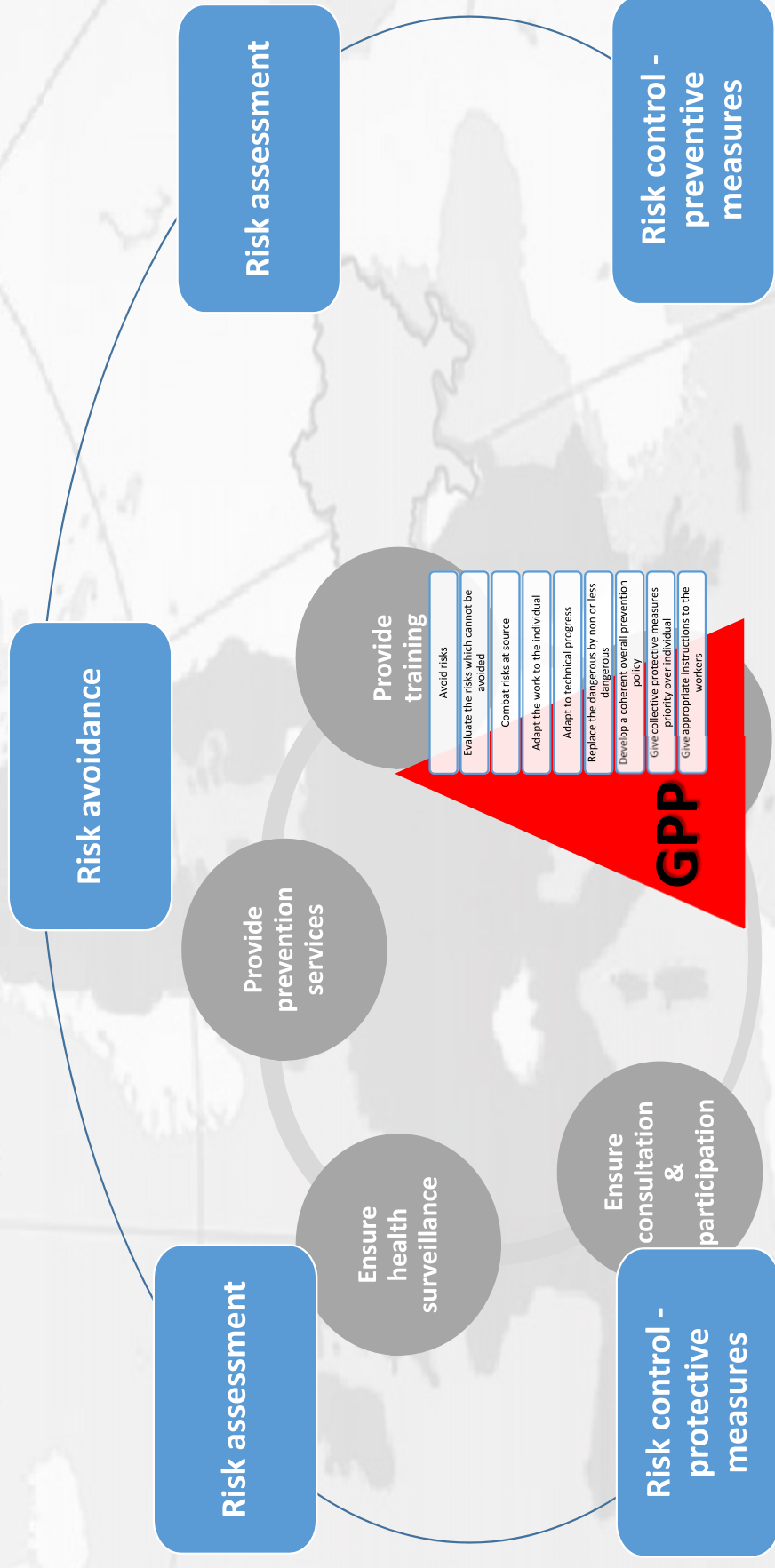
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International Labour
Standards (ILS) on OSH in
Agriculture and Forestry

EU OSH Legal Framework

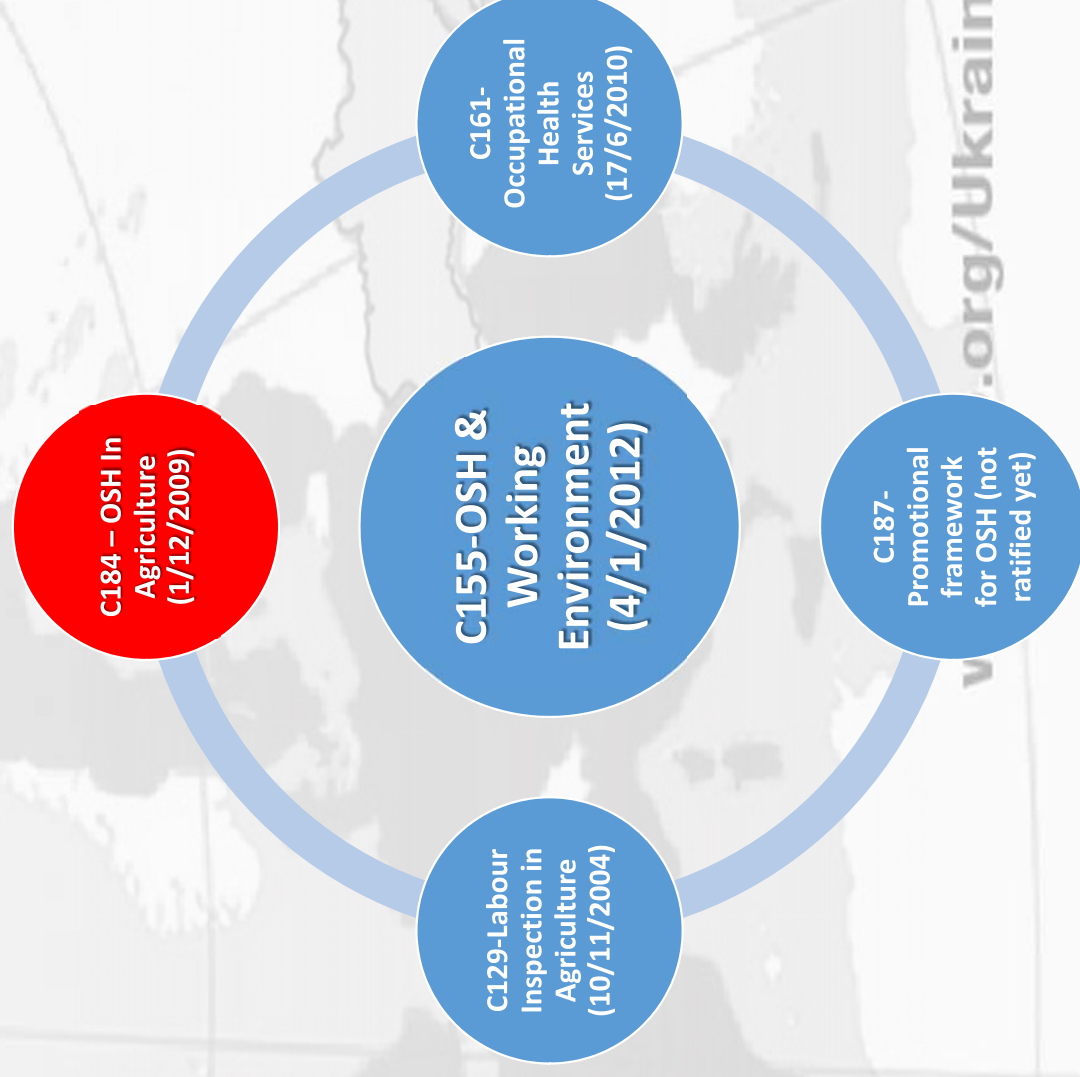


EU OSH Acquis on Agriculture / Forestry – Directive 89/391/EEC*



* Which applies to all sectors of activity, both public and private (industrial, agricultural, commercial, administrative, service, educational, cultural, leisure, etc.), without prejudice to: (1) existing or future national and Community provisions which are more favourable to workers' OSH; (2) more stringent and/or specific provisions contained in individual Directives

ILO International Labour Standards on OSH in Agriculture / Forestry



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ILO Conv. 155 concerning OSH and the working environment - Scope

- all branches of economic activity
- all workers in the branches of economic activity covered

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ILO Conv. 155 – Obligations of Constituents

1. Formulate, carry out and periodically review a coherent national policy on occupational safety and health and the working environment, to prevent accidents and injury to health, by minimizing the causes of hazards.
2. The OSH policy should address:
 - Design, testing, choice, substitution, installation, arrangement, use and maintenance of the material elements of work (workplaces, working environment, tools, machinery and equipment, chemical, physical and biological substances and agents, work processes);
 - relationships between the material elements of work and workers;
 - adaptation of machinery, equipment, working time, organization of work and work processes to the physical and mental capacities of the workers;
 - training, qualifications and motivations of persons involved in the improvement of OSH;
 - communication and co-operation at all levels; and
 - protection of workers and their representatives from disciplinary measures as a result of actions properly taken by them.
3. Provide guidance to employers and workers so as to help them to comply with legal obligations.

ILO Conv. 155 – Obligations of Constituents

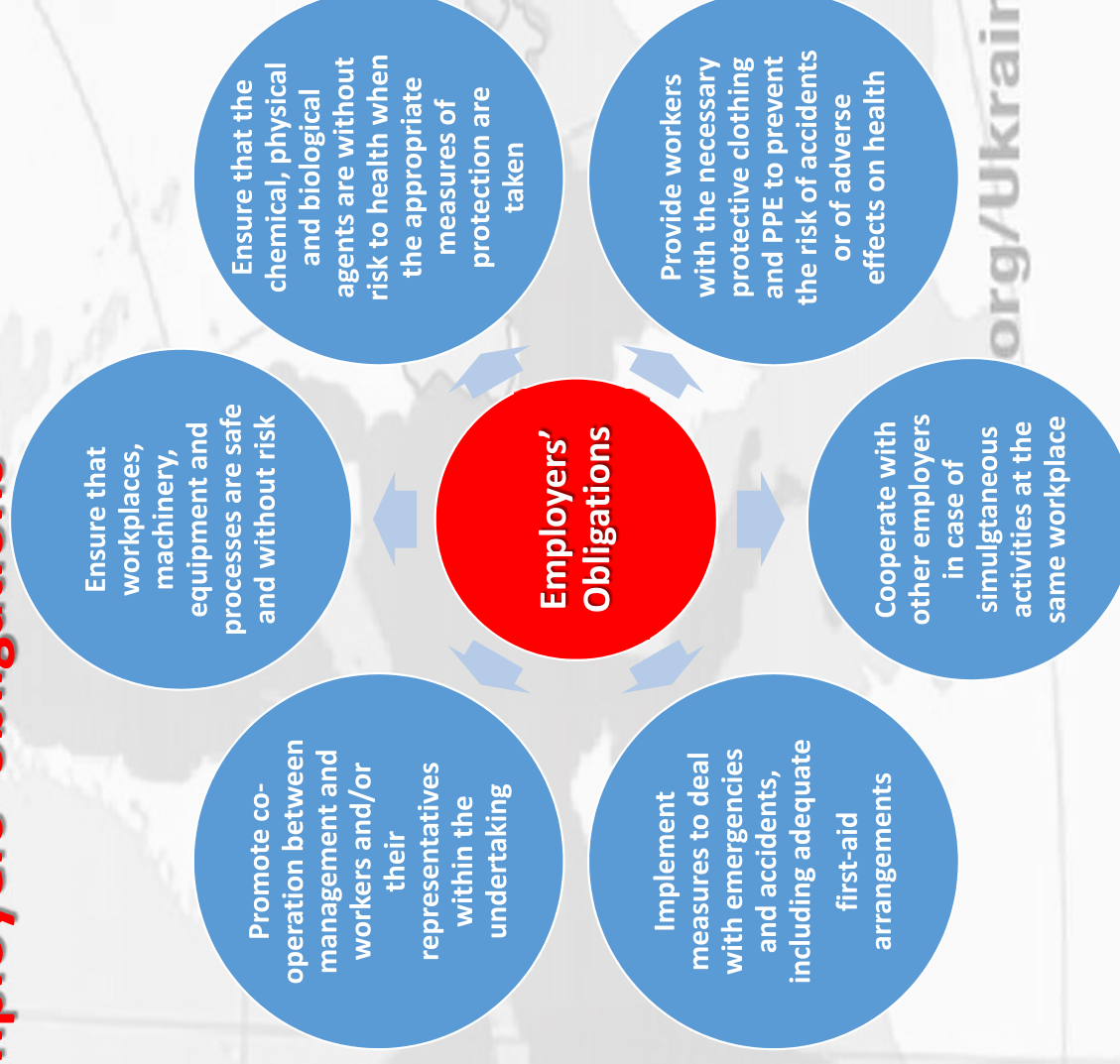
4. Establish an appropriate system of inspection, to enforce OSH laws and regulations, and provide it with adequate penalties for violations;
5. Ensure the performance of the following functions:
 - Determination of conditions governing the design, construction and layout of undertakings, the commencement of their operations, major alterations affecting them and changes in their purposes, and the safety of technical equipment used at work;
 - Determination of work processes and of substances and agents the exposure to which is to be prohibited, limited or made subject to authorization or control (also considering the health hazards due to the simultaneous exposure to several substances or agents);
 - Establishment and application of procedures for the notification of occupational accidents and diseases and to the production and publication of their annual statistics;
 - Holding inquiries in cases of occupational accidents and diseases and any other incidents that reflect serious OSH situations;
 - Introduction or extension of systems to examine chemical, physical and biological agents in respect of the risk to the health of workers.
6. Inclusion of OSH issues at all levels of education and training (including higher technical, medical and professional education), in a manner meeting the training needs of all workers.

ILO Conv. 155 – Obligations of Constituents

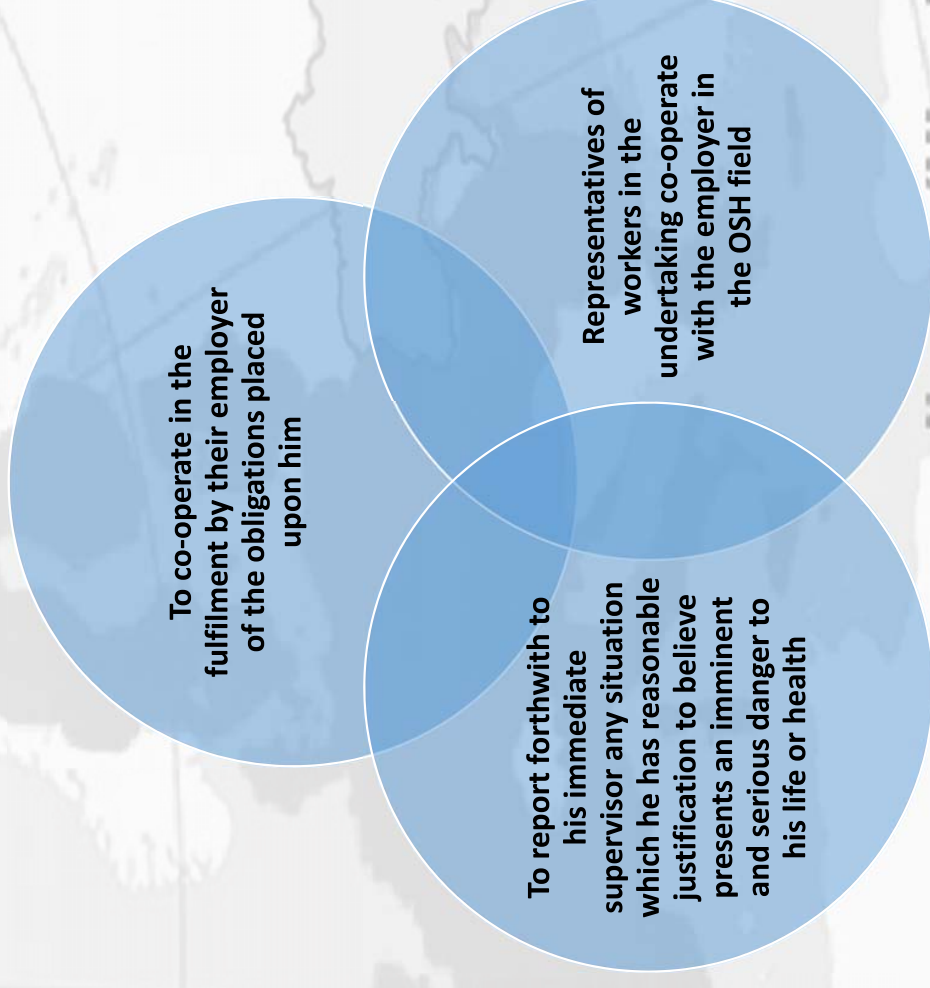
7. Ensure that those who design, manufacture, import, provide or transfer machinery, equipment or substances for occupational use:
 - Guarantee that machinery, equipment or substance does not entail dangers for the safety and health of those using it correctly;
 - Make available information concerning the correct installation and use of machinery and equipment and the correct use of substances, and information on hazards of machinery and equipment and dangerous properties of chemical substances and physical and biological agents or products, as well as instructions on how known hazards are to be avoided;
 - Undertake studies and research or otherwise keep abreast of the scientific and technical knowledge.
8. Ensure that a worker who has removed himself from a work situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health shall be protected from undue consequences.

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ILO Conv. 155- Employers' obligations



ILO Conv. 155– Workers’ obligations



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ILO Conv. 155– Workers’ rights



ILO Conv. 184 concerning OSH in Agriculture - Scope

Covers agricultural and forestry activities carried out in agricultural undertakings including:



ILO Conv. 184 – Obligations of Constituents

- 1
 - Formulate, carry out and periodically review a coherent national **policy on safety and health in agriculture** to prevent accidents and injury to health, by eliminating, minimizing or controlling hazards.
- 2
 - Ensure an adequate and **appropriate system of inspection for agricultural workplaces** and provided it with adequate means.
- 3
 - Provide in law or regulations that **machinery, equipment, including PPE**, appliances and hand tools used in agriculture comply with national or other recognized safety and health standards and be appropriately installed, maintained and safeguarded.
- 4
 - Take measures to ensure that **manufacturers, importers and suppliers comply with the safety standards and provide adequate and appropriate information**, including hazard warning signs, in the official language of the user country and to the competent authority.
- 5
 - Provide in law or regulations that **agricultural machinery and equipment shall only be used** for work for which **they are designed**, unless a use outside of the initial design purpose has been assessed as safe and shall not be used for human transportation, unless designed or adapted so as to carry persons and be **operated by trained and competent persons**.

ILO Conv. 184 – Obligations of Constituents

- 6
- Establish safety and **health requirements for the handling and transport of materials**, particularly on **manual handling**, based on risk assessment, technical standards and medical opinion and taking account of all the relevant conditions under which the work is performed.

- 7
- Ensure an appropriate national **system establishing specific criteria for the importation, classification, packaging and labelling of chemicals** used in agriculture and for their banning or restriction.

- 8
- Ensure that those **who produce, import, provide, sell, transfer, store or dispose of chemicals comply with safety and health standards**, and **provide adequate and appropriate information** to the users in the appropriate official language of the country and to the competent authority.

- 9
- Ensure a suitable **system for the safe collection, recycling and disposal of chemical waste**, obsolete chemicals and empty containers of chemicals so as to avoid their use for other purposes and to eliminate or minimize the risks to safety and health and to the environment.

- 10
- Ensure that there are **preventive and protective measures for the use of chemicals and handling of chemical waste** at the level of the undertaking covering, in particular: (1) the preparation, handling, application, storage and transportation of chemicals; (2) agricultural activities leading to the dispersion of chemicals; (3) the maintenance, repair and cleaning of equipment and containers for chemicals; and (4) the disposal of empty containers and the treatment and disposal of chemical waste and obsolete chemicals.

ILO Conv. 184 – Obligations of Constituents

11 • **Ensure that risks** (e.g., infection, allergy or poisoning) **are prevented or kept to a minimum** when **biological agents** are handled, and activities involving animals, livestock and stabling areas, comply with health and safety standards.

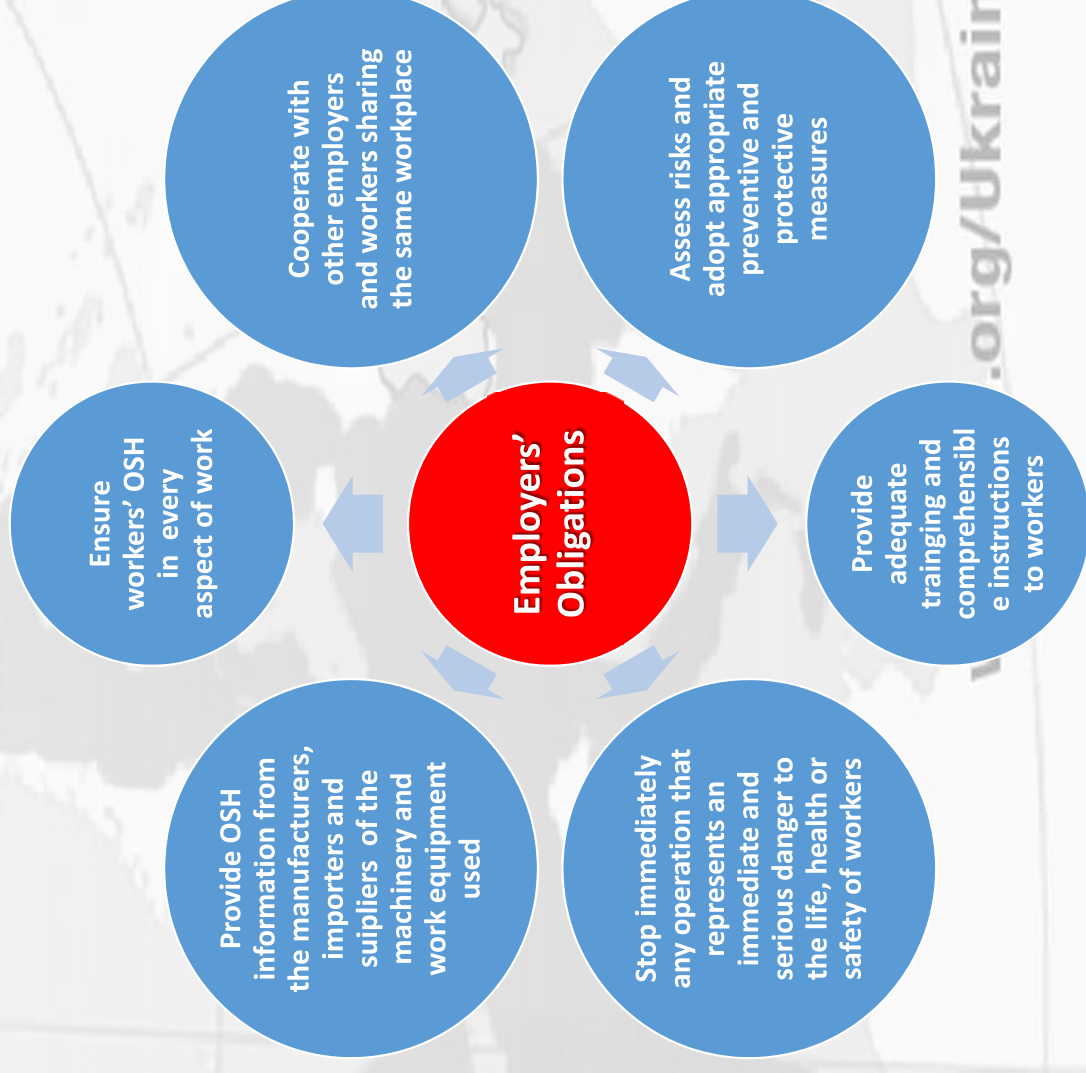
12 • Minimum age for assignment to work in agriculture: not less than **18 years** (in works likely to harm the safety and health of young persons); **16 years** (with appropriate prior training and young workers' safety and health fully protected).

13 • Temporary and seasonal workers receive the **same safety and health protection** as the permanent workers in agriculture.

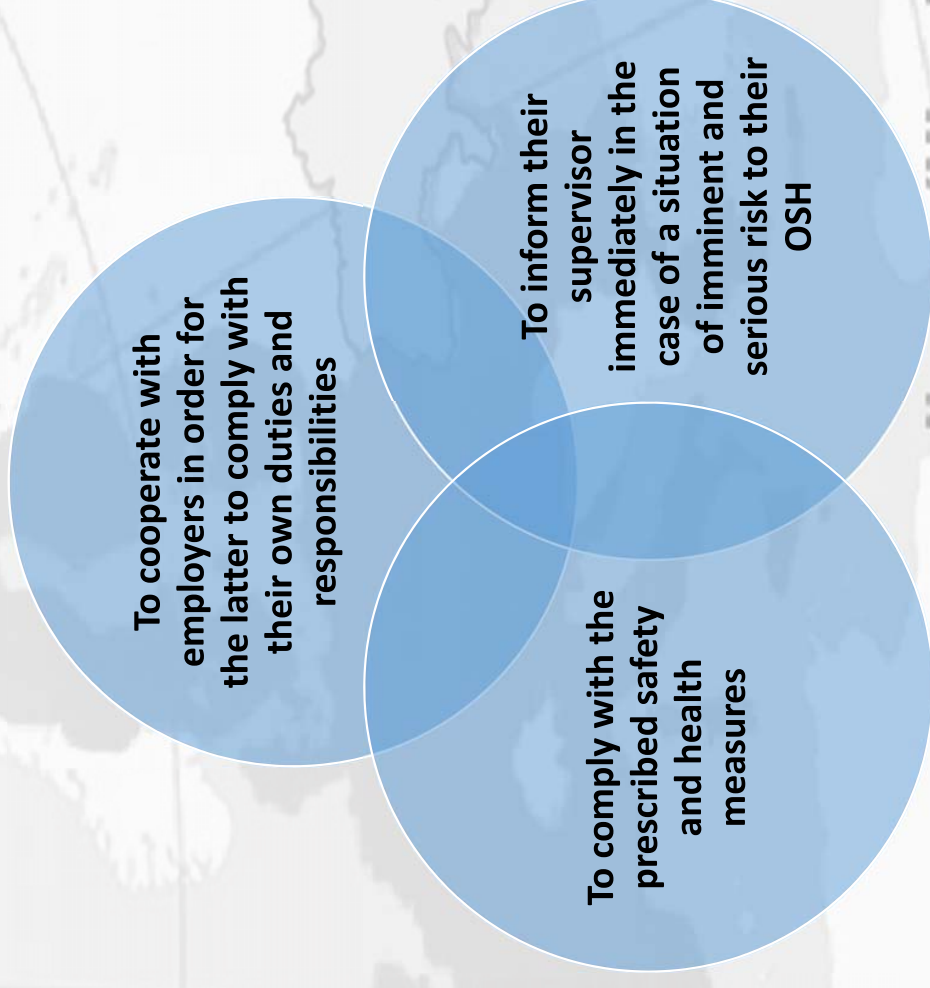
14 • Ensure that the special **needs of women agricultural workers** are taken into account in relation to **pregnancy, breastfeeding and reproductive health**.

15 • Prescribe, in law or regulations, the provision of **adequate welfare facilities** at no cost to the workers and the **minimum accommodation standards** for workers who are required by the nature of the work to live temporarily or permanently in the undertaking.

ILO Conv. 184 - Employers' obligations

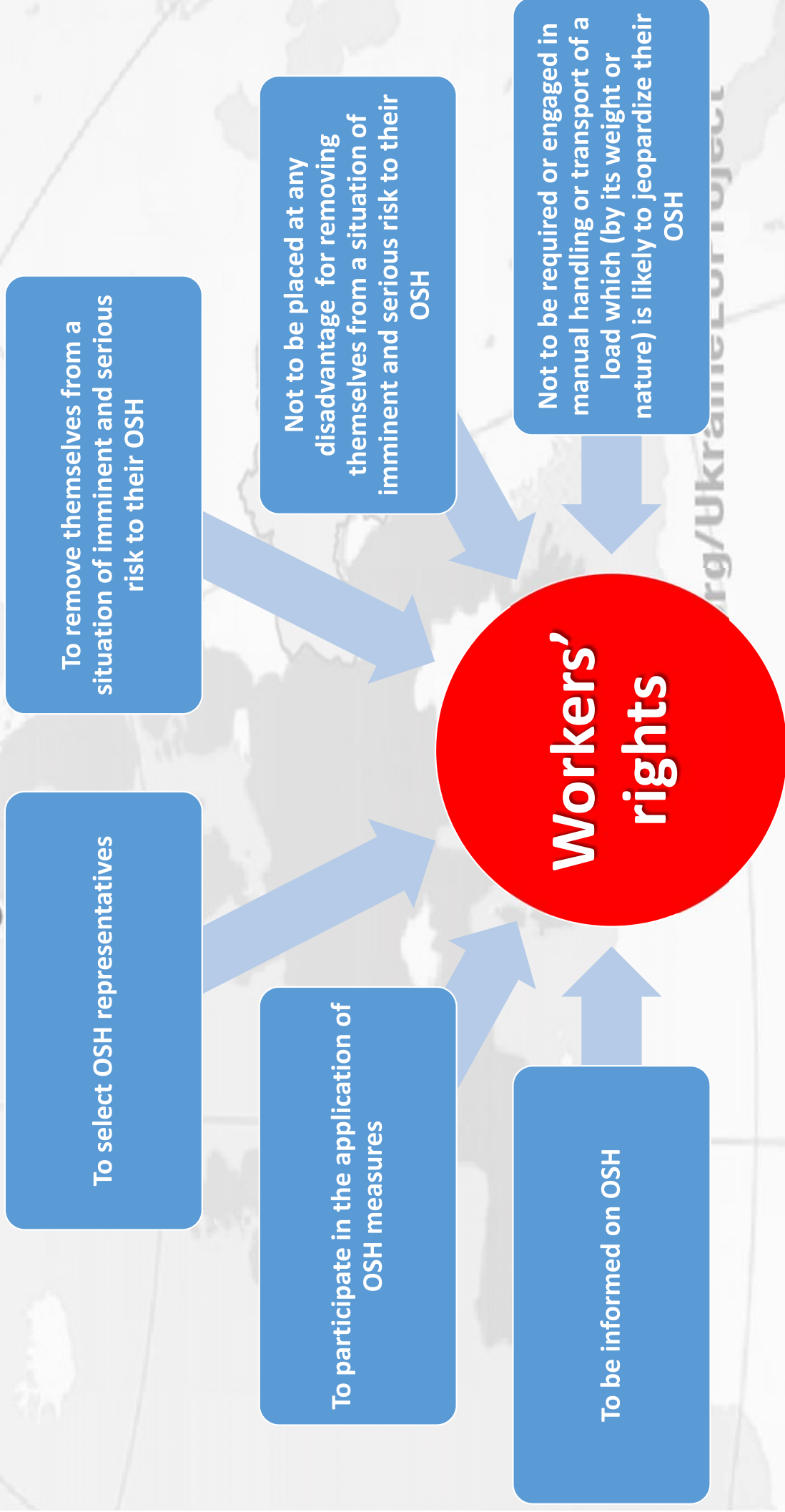


ILO Conv. 184 – Workers' obligations



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ILO Conv. 184 – Workers' rights





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Дякую за увагу!
Thank you for your attention!
Obrigado pela vossa atenção!
Gracias por su atención!

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EU-ILO Project

«Enhancing the labour administration capacity to improve working conditions and tackle undeclared work»

Module 5

Occupational safety and health in forestry

Training for trainers

*“OSH risk management (assessment and control) methodologies and labour inspectors’
gesture in specific sectors of activity”*

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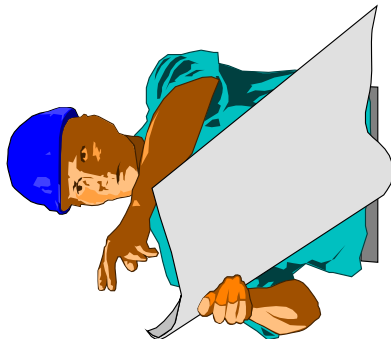
Forest work

Specificities	Risks
▪ It follows in the form of "mobile sites" ▪ It takes place outdoors ▪ It takes place in isolated places ▪ It develops on uneven terrain, often on steep slopes ▪ It often causes the use of considerable muscular force ▪ It obliges, to the use of work equipment that demands physical resistance and capacity of concentration	▪ Cut ▪ back injury ▪ Crushing ▪ Deafness ▪ skin problems ▪ Falls ▪ Intoxications



Forest Work - Some factors contributing to accidents in the work

- ❖ Technical problems / Inexistence of protection systems
- ❖ Lack of maintenance / failure of work equipment
- ❖ Inadequate selection of work equipment for operations performed
- ❖ Procedures / unsafe working behaviors
- ❖ Absence of information and training
- ❖ Inexperience / overconfidence



Legal framework and duties of competent authorities

National laws or regulations ought to provide that:

- ✓ employers have the main responsibility for safety and health in forestry work;
- ✓ employers are responsible for installing and maintaining work systems and methods which are safe and without risk to health;
- ✓ employers should give all necessary training and instruction to ensure that workers are competent to carry out safely the tasks assigned to them;
- ✓ employers should install a system whereby accidents, dangerous occurrences and occupational diseases are reported, recorded and investigated.

Legal framework and duties of competent authorities

Duties of labour inspectorates

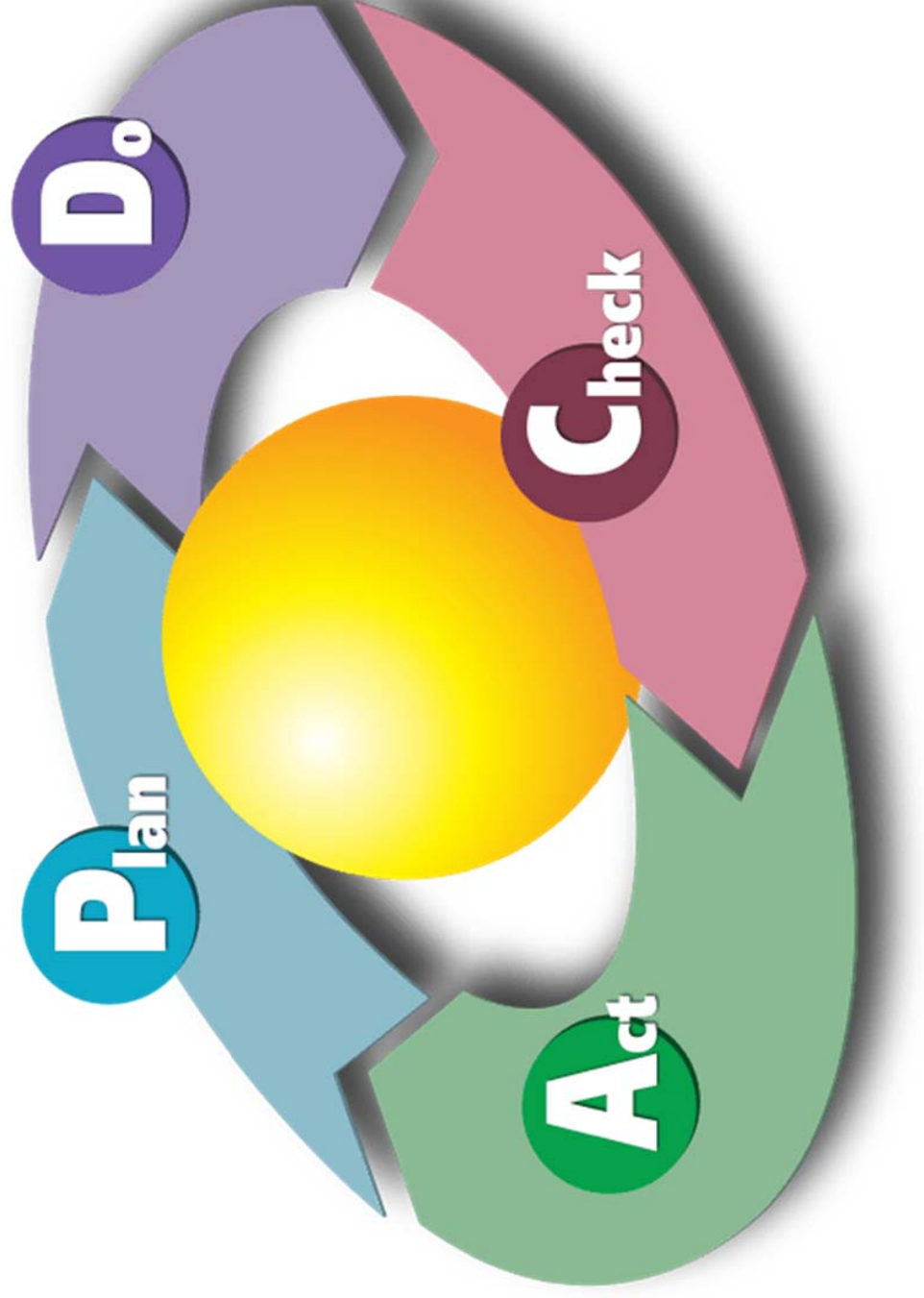
- Labour inspectorates must monitor compliance with and enforce all relevant laws and regulations at the workplace.
- Labour inspectorates should aim to support the employers' and workers' own measures to improve levels of occupational safety and health.
- Forestry operations are frequently carried out in remote worksites which are dispersed and often change location, and the work is typically undertaken by small groups of workers.

Legal framework and duties of competent authorities

Duties of labour inspectorates

- Labour inspectorates must advise employers and their workers on the safe performance of activities, particularly on the choice and use of safe working methods and appropriate personal protective equipment
- Labour inspectorates should cooperate with organizations of employers and workers, in the formulation and updating of safety rules and additional safety measures to be adopted at national and enterprise levels

Forest Work - A Health and Safety Policy



Forest work - Planning and Work Organization

Identification of works

Preparation of workplaces:

- ❖ Terrain feature
- ❖ Mounting the loader
- ❖ Storage areas
- ❖ Access (signaling)

Product Features

Dates and deadlines for intervention

Equipment, machinery, tools and products

Description of working methods



Forest work - Planning and Work Organization

Work environment

Integration of the teams

Signaling

Equipment check

Training of operating modes



Forest work - Planning and Work Organization

Main risks and prevention measures

collective protective equipment / individual

1st aid supplies

Appointment of person in charge



Emergency
procedures

❖ Bad weather

❖ Problems with equipment



Forestry Work - Prevention Planning

Planning enables proper prevention management

In what dimensions?

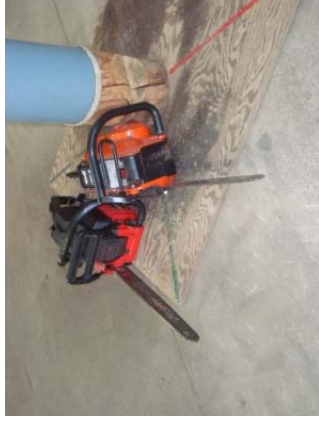
- ❖ The exercise of risk assessment;
- ❖ The use of information tools;
- ❖ The choice of equipment;
- ❖ The choice of professionals who should be
- ❖ information and training;
- ❖ etc.



Forest work

What Information?

- Working Procedures for each equipment;
- Safety procedures for operating modes.



Forestry Work - Training

Training of professionals related to the equipment:

- ✓ how to pick up the chainsaw
- ✓ how to speed up the chainsaw
- ✓ how to operate the chainsaw



CHAIN SAW

Chain lock and front hand guard

Safety chain



Blocker throttle

Rear guard-rail

Anti-vibration devices

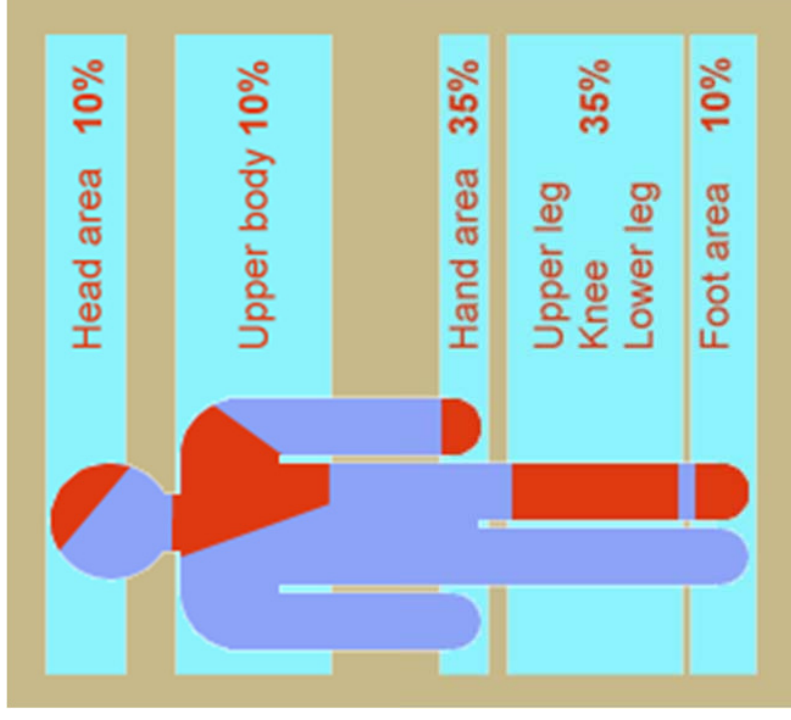
Retainer chain

Sheath

ACCIDENT FREQUENCY

The most common causes of chainsaw injuries:

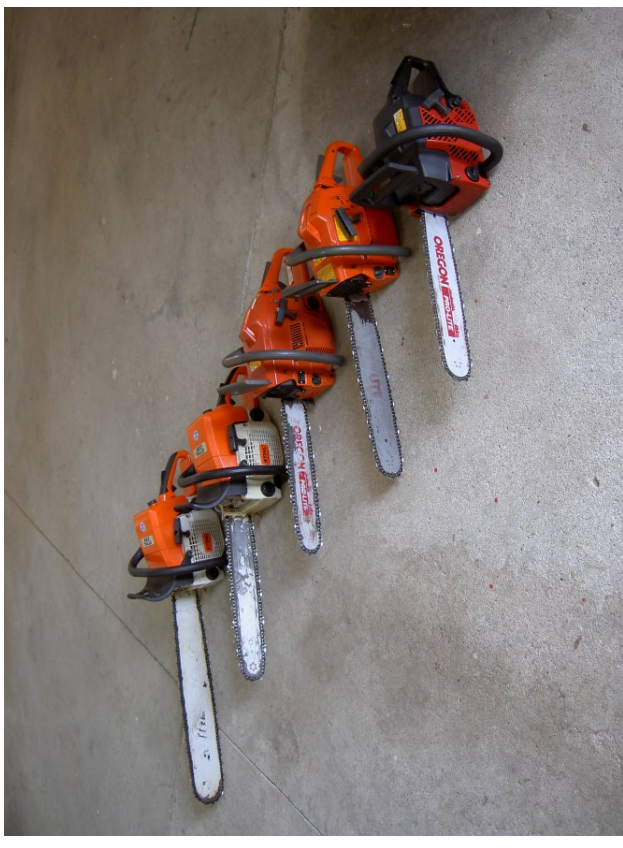
- cut above head height;
- rebound;
- working with one hand;
- deconcentration in the cut..



PREVENTION: Adequate choice

To have in count::

- the most frequent type of work - cylinder capacity and blade length;
- the approval;
- the safety devices;
- the ease of maintenance;
- the technical assistance service;
- the ergonomics;
- the price.



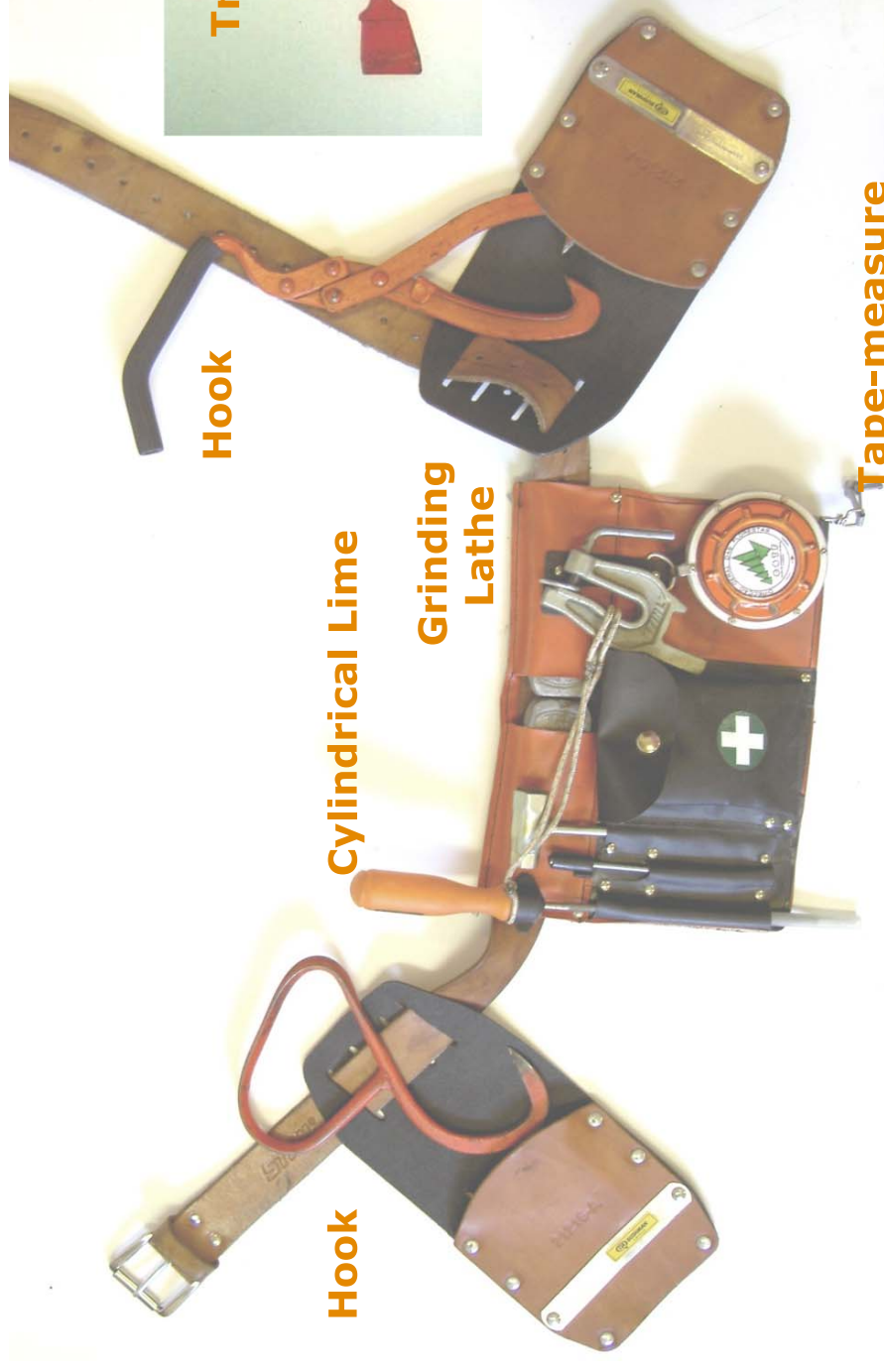
PREVENTION: Check the condition

- chain brake;
- accelerator blocking;
- start / stop switch;
- squeeze of bolts and boring machine;
- chain tension;
- chain tuning.



**Follow the manufacturer's instructions
carefully**

PREVENTION - Tools



Hook

Cylindrical Lime

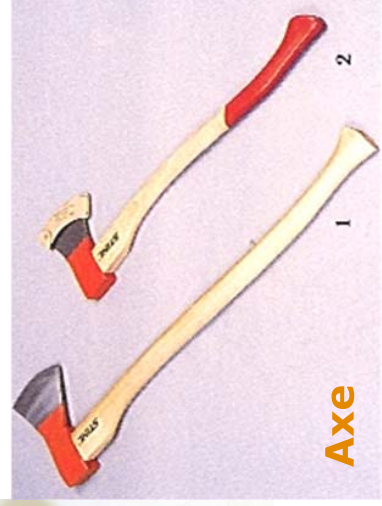
Grinding Lathe

Tape-measure of Chainsaw

Hook



Tree Felling Lever



Axe

PREVENTION: Accessories

Equipments:

- mixed fuel tank;
- spark plug, air filter, starter rope, starter spring, cutting chain,;
- chainsaw belt (lime, small screwdriver, combination wrench, measuring tape, hook, wedge, claw and first aid kit).



Check that you have all the necessary materials for the proper maintenance

PREVENTION: Supply

Making::

- away from any source of ignition;
- in a clean place;
- in a protected place and the shade;
- first the oil supply and then the fuel;
- the manual lock caps and verify that are tightly closed.



Always use appropriate and properly labeled containers

PREVENTION: STARTING

CHAINSAW SEATED ON THE LAND:

- put your right foot on the back handle;
- put your left hand on the front handle;
- ensure that the blade is away from any obstacle;
- pull the starter rope with your right hand..



It is especially suitable when the **engine is cold**, on **heavier models** or when the operator has **little experience**.

Do not start near other people

PREVENTION: STARTING

CHAINSAW BETWEEN THE KNEES:

- support the back handle between the knees;
- put the left hand on the front handle;
- pull the starter rope with the right hand.

This method is possibly the most convenient and safer

Do not start near other people



PREVENTION: STARTING

CHAINSAW SUSPENDED IN THE HANDS:

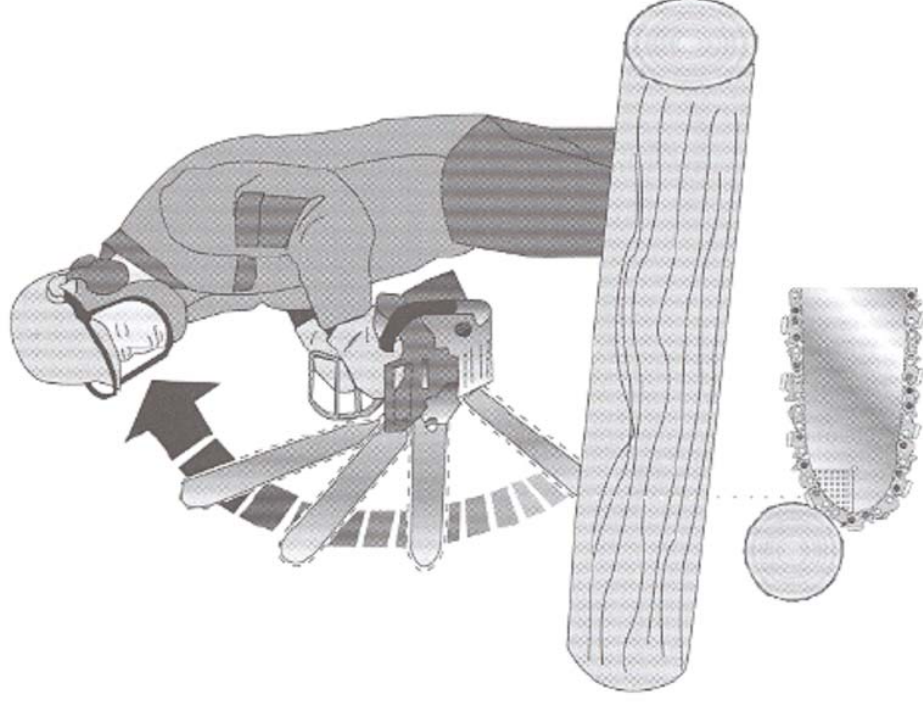
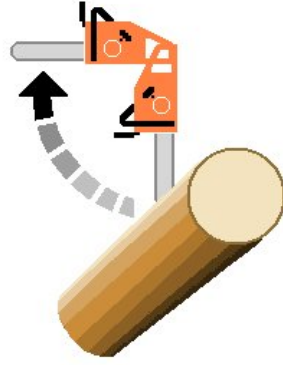
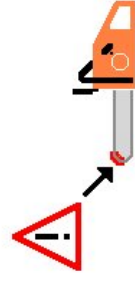
- hold the front handle with your right hand;
- use the weight of the chainsaw to balance when pulling the starter rope with the left hand..

This method can be dangerous if the operator uses his left hand to hold the front handle!



PREVENTION : REBOUND

- never use the tip of the blade for cutting;
- never use above the shoulders.



The chainsaw operator has at its disposal a wide range of clothing and personal protective equipment (PPE) to work in the best conditions of comfort and safety and should always select carefully those that are best suited to each situation.



Operating cutting - observation

Carrying out a set of observations related to the tree to be felled:

- ✓ tree top form(crown)
- ✓ dry branches at risk of falling
- ✓ tree trunk profile
- ✓ electrical and telephone wires
- ✓ proximity of high-voltage lines
- ✓ escape routes



Operating logging surrounding

Organization of Work with regard to:

- ✓ Cleaning the surrounding space of the tree to be felled
- ✓ Preparation of the cutting area
- ✓ Tree fall direction
- ✓ Wind influence



Operating cutting Work organization

- ✓ signaling the trees to be harvested
- ✓ signaling against the presence of third persons
- ✓ check for all equipment, tools and products
- ✓ ordering all equipment, tools and products according to the needs of use



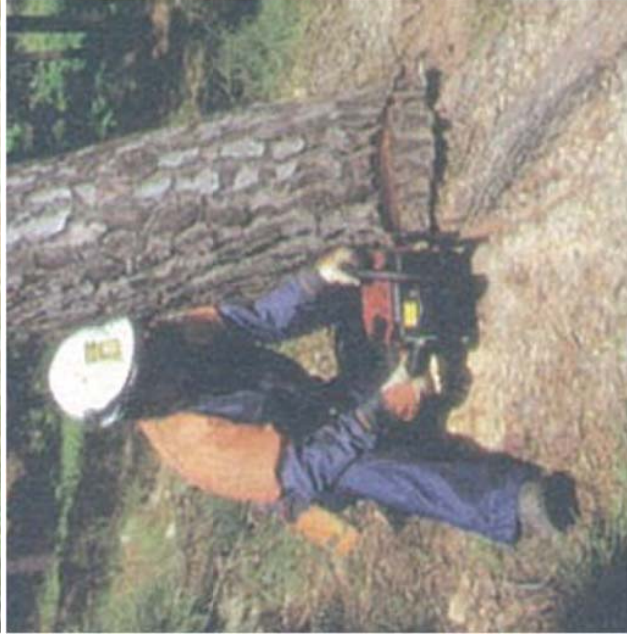
Operating cutting Support and cooperation

Organization of Work with regard to:

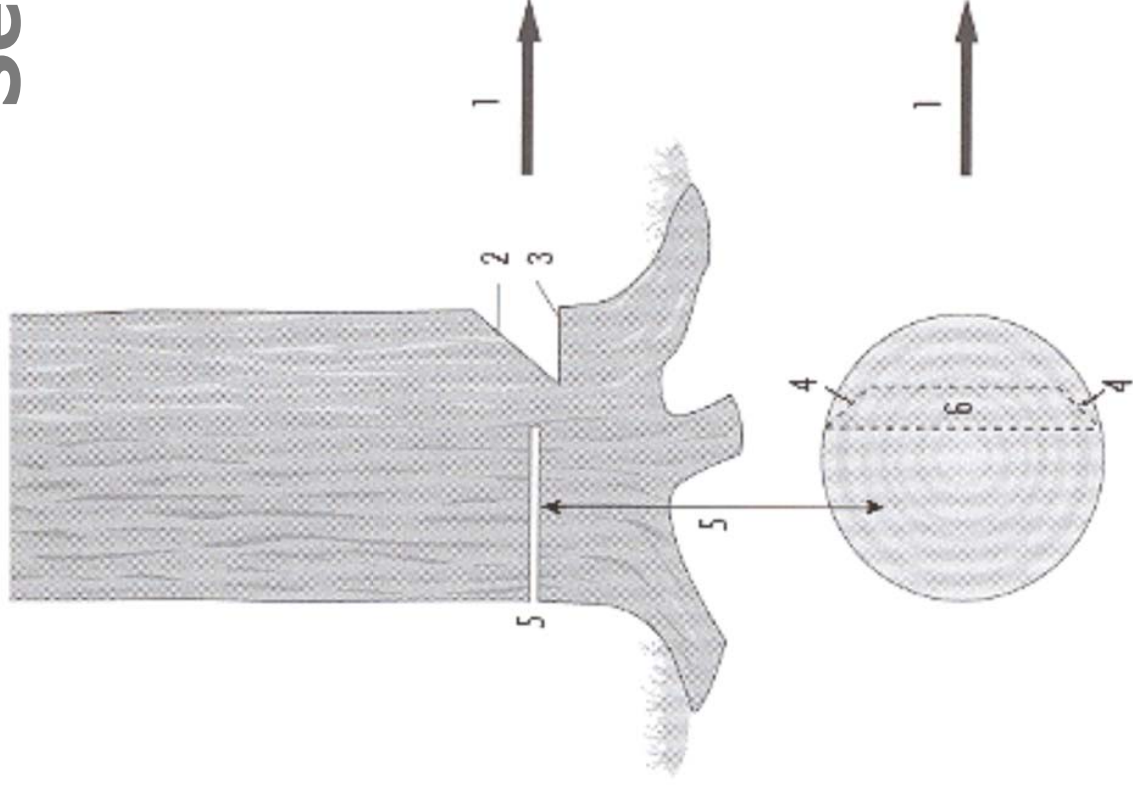
- ✓ Availability wedges and tree felling lever to facilitate the cut of tree or sloping trees.
- ✓ Safety distance between two operators must be more than twice the average height of trees to be harvested.



Sequence of cuts



Sequence of cuts



1. Felling direction
2. Top scarf cut
3. Bottom scarf cut (width approx. 45°; depth 1/5-1/4 of stem diameter)
4. Small, lateral cuts (to prevent tearing out of fibre in softwoods)
5. Main felling cut or back cut (slightly higher than bottom of scarf)
6. Leave enough wood as a hinge

PREVENTION: Operate

- ❖ rotation of operators (avoid more than 5 hours / day of exposure);
- ❖ always be fell trees during the day and with good visibility;
- ❖ do not fell trees when there is strong wind;
- ❖ much inclined or icy slopes, only operate when it is possible to maintain stability;
- ❖ encourage operators to ask for help to overcome some difficulties in fell trees.



PREVENTION: Postures to adopt

- always keep the equilibrium position, with feet firmly;
- flex the legs when using the chainsaw in a low position;
- search support points for chainsaw;
- keeping the chainsaw close to the body provides better balance, less effort and better machine control

Never use the chainsaw above your shoulders

PREVENTION: Handling

- keep the right fists;
- use the full extension of the front handle and use your thumb or forefinger to operate the throttle control



PREVENTION: Traveling

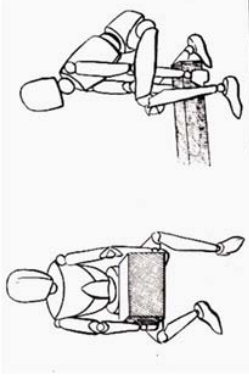
- with the engine stopped;
- is transported on the left side and with the guide blade facing back: thus avoiding contact with the exhaust;
- with the guide blade sheath placed.



Manual extraction

Lifting and carrying wood manually should be avoided whenever possible.

- ✓ Manual handling of timber should not be done without the use of aid tools such as hooks or tongs
- ✓ Workers should keep their backs straight and use their leg muscles when lifting
- ✓ Loads should be kept close to the body and be well balanced. Workers should select their path carefully and avoid obstacles



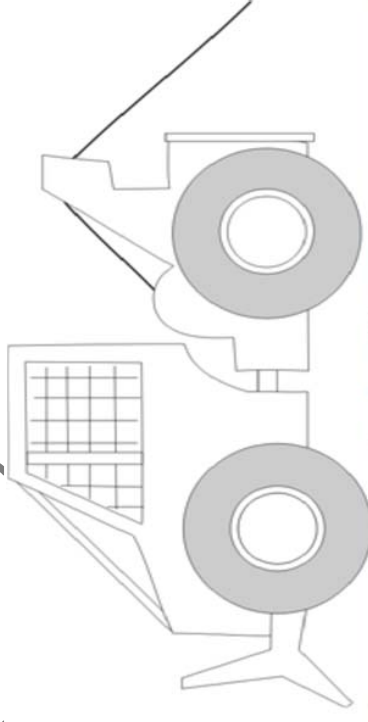
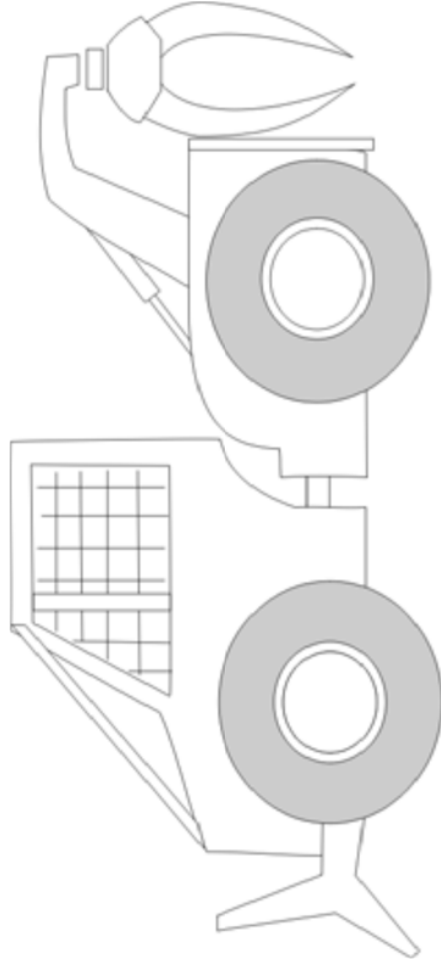
- ✓ If logs are carried by more than one person, the rearmost worker should give the commands for lifting and dropping
- ✓ Rolling or sliding timber downhill should only be done when the down slope area is completely clear of other persons



Manual Handling

Extraction

Operation of transfer of logs or tree trunks from the place of cutting to the loader using agricultural tractors adapted to the forestry work with winch or dragger tractors(**skidders**)

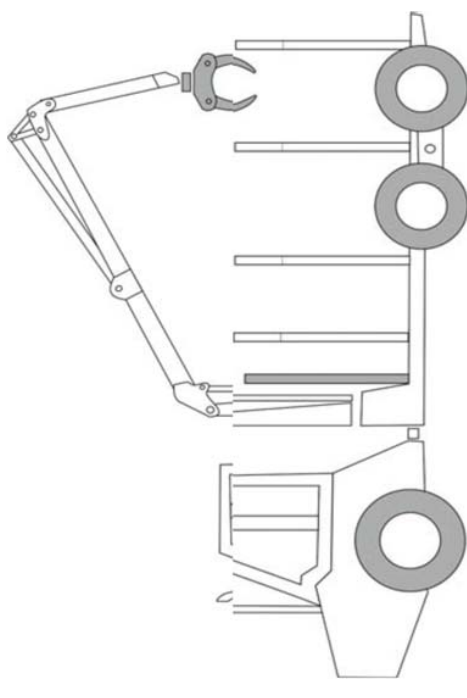


Skidders

Safety measures	Read the instruction manual of the machines
	Checking the operating status of machinery and equipment and provide an adequate maintenance
	They should only use the machines, qualified employees and authorized
	Use a safe technique for getting in and out of the cabin and adjust the driver's seat
	Plan and organize the work, evaluate and reference the areas to be intervened and the associated risks
	Raise the front blade before starting to move and ensure that workers must be kept at a distance greater than the length of the machine and the point farthest from the load
	Perform a daily maintenance inspection of cables, straps, shackles and other material
	All workers must know very well the communication signals code

Forwarders

Forestry machines designed for forestry operations that have a hydraulic crane, allowing the movement of the wood material on a loading platform for the loader



Forwarders

Safety measures

Do not exceed the load capacities other than those indicated

Do not climb into the load or allow anyone to do so.

Take precautions if working close to overhead electrical cables and telephone lines

Fixing grap crane on the chassis or on top of the load.

Never leave the spear and grap free without support, and laid on the ground.

Do not open the radiator cap when the engine is hot, and have it cleaned to maintain a correct operating temperature

Read the instruction manual of the machines

Tractor with Forest Trailer and Crane

Harvest consists of the movement of the logs or whole trunks in order to concentrate the woody material next to the extraction rails



Tractor with Forest Trailer and Crane

Safety measures	Use the machine only when the conditions that guarantee to keep all the safety features
	Checking the operating status of machinery and equipment and provide an adequate maintenance
	Read the instruction manual of the machines
	They should only use the machines, qualified employees and authorized
	Plan and organize the work, evaluate and reference the areas to be intervened and the associated risks
	Maintain safety distances (no one should be at least 20m radius)
	Fixing grap crane on the chassis or on top of the load.
	Take precautions if working close to overhead electrical cables and telephone lines

Tractors and agricultural machinery

The variability of machines or motor or operators, used in the activity is accompanied by many eminent danger during use.

Many risk situations have been resolved, but technological and scientific innovation made available to new machines brings emerging risks



Tractor

Farm tractor - is a motor vehicle provided with wheels or caterpillar tracks, having at least two axes, able to exert high tensile stresses in respect of its weight, even under low adhesion conditions.

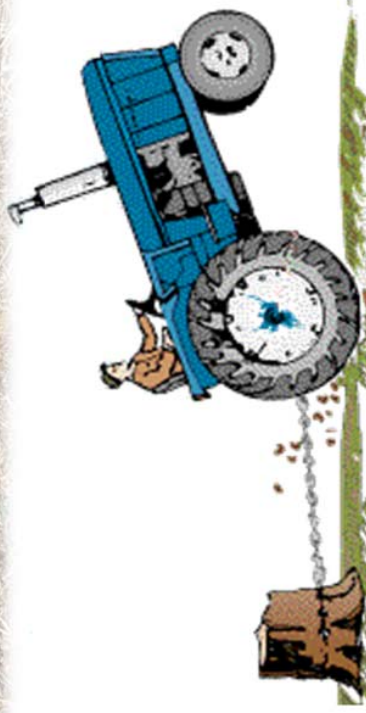
Basic operations that can perform:

- ✓ carry;
- ✓ pull;
- ✓ push;
- ✓ operate;
- ✓ mixed.





Tractor



Main Risks

- ✓ Crushing by rollover or overturn;
- ✓ Warping back,
- ✓ Fall in height: access to the tractor or agricultural / forestry machine;
- ✓ Cutting / Shock
- ✓ Winding: in the transmission shafts of cardan in the moving parts of the machines
- ✓ Running over

Tractors Rollover

	Intrinsic danger of tractors	- lack of stability (the center of gravity height and width of the gauge); - lack of sensitivity in controls (steering, brakes, etc.); - imbalance to perform tensile stress or suffer trailers pushes.
	irregular ground configuration	- paths and disabled access, - gaps, ditches, stones, etc.
	Lack training and information for operators	- lack of training; - ignorance of risks; - lack of knowledge of tractor limitations.
	Technical failure	- inadequate maintenance and conservation;
	Unsafe practices	



Tractors - preventive measures

- ✓ Training / qualification and information of the operator;
- ✓ Actions on the stability of the tractor (double traction, caterpillars, ballasting and gauge);
- ✓ Actions on the ground, planting crops - redoubled care in sloping areas, with ditches, slopes;
- ✓ Join the brake pedals;
- ✓ Adjust speed to working or driving conditions (curves, loads);
- ✓ Maintenance and conservation of the tractor.
- ✓ Fix, connect and regulate the machines in the appropriate places.
- ✓ Intervening only a standstill;
- ✓ Remove all unnecessary persons from the machine.

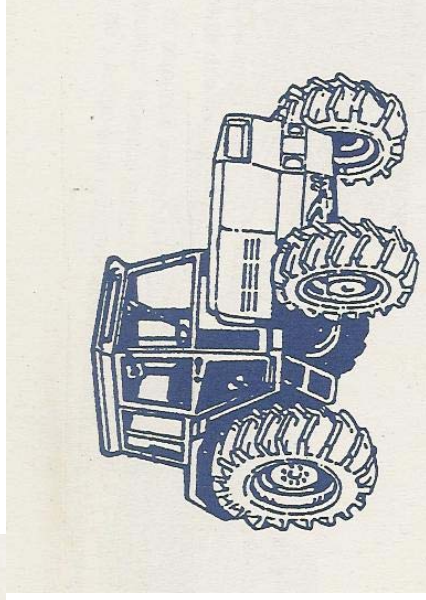
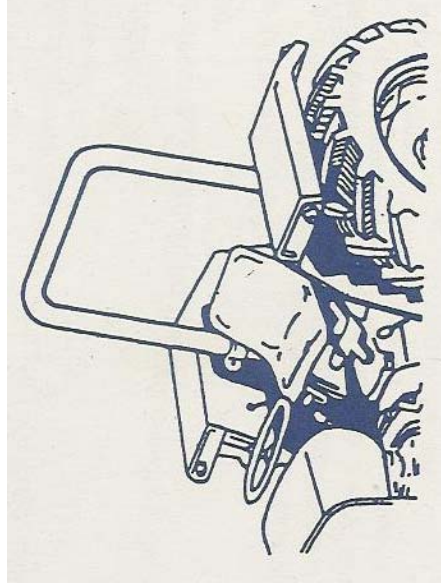


Use of protective structures

- ✓ Always use approved and certified safety structures;
- ✓ Avoid situations of risk of overturning;
- ✓ In case of overturning, hold tightly at the steering wheel until the tractor stops;
- ✓ Do not change the structure;
- ✓ Keep the bow lowered only in case of extreme need;
- ✓ In case of revision replace the safety structure;
- ✓ Inside the cabin can only go the operator;
- ✓ In case of seat change, take into account approved test models so as not to reduce the safety zone;
- ✓ In the case of a change of safety structure, take into account the structures approved and certified for the type concerned.



Tractors - protective measures



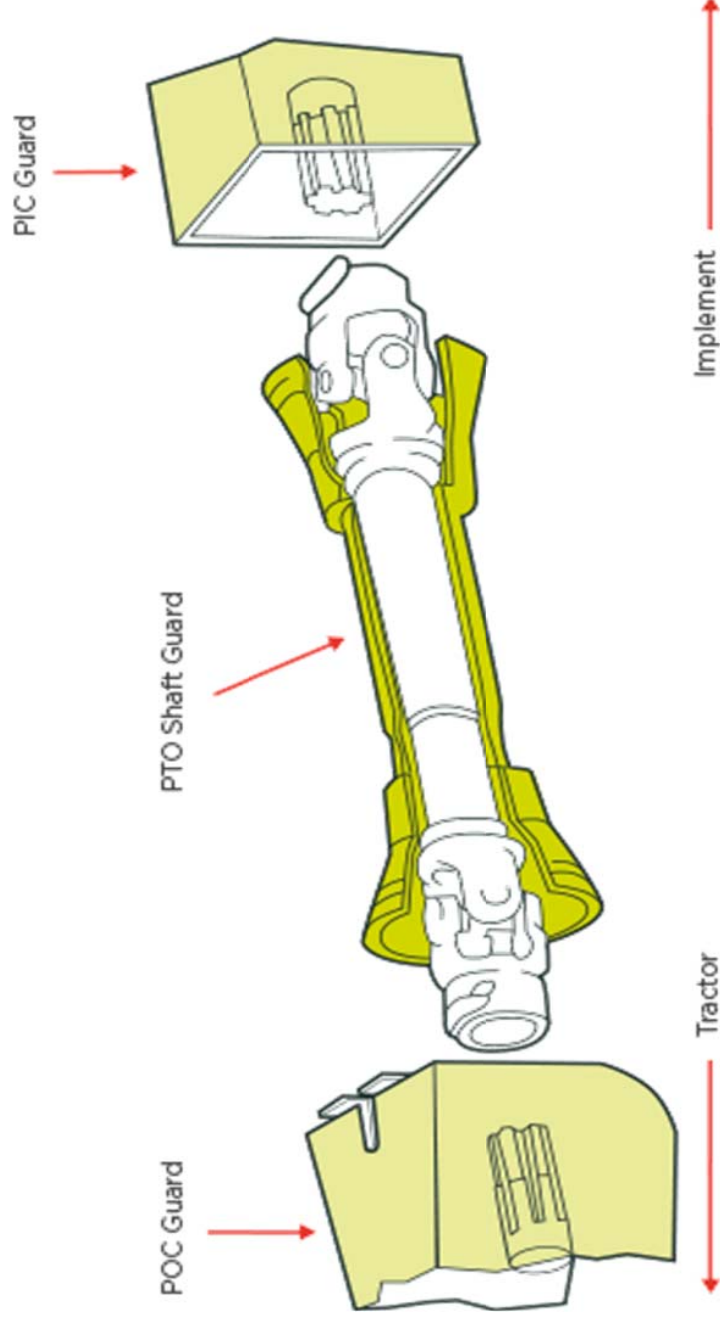
Power take-off shaft

Most of the operating machines receive from the tractor the necessary power for its operation, through the telescopic shaft of cardans, that can transmit the power and the movement between two shafts (one in the tractor and another in the machine) with a variable distance and in different plans.

People have been killed and seriously injured after getting caught in PTO shafts and couplings. There does not need to be any part sticking out from the PTO assembly to cause entanglement. Clothing only needs to wrap around the shaft once, then the friction of the fabric touching itself makes it stick, and as the PTO turns, the force wrapping the fabric around the shaft increases.



Power take-off shaft



Power take-off guarding (PTO = power take-off;

POC = power output coupling;

PIC = power input coupling)



Power take-off shaft

Guarding considerations:

- ✓ All guards specified by the manufacturer must be in place and well maintained
- ✓ If a guard needs to be removed for maintenance or cleaning, isolate and lock- out machinery so it cannot be started without the guard
- ✓ Refer to the manufacturer's fitting, operating and maintenance instructions
- ✓ Check all guards regularly (eg daily when in use) for wear and damage, and replace damaged guards.



Training requirements

Training should include:

- ✓ Induction – all workers and contractors should receive information about hazards, control measures, farm rules and policy, safe work procedures and how to safely use a particular tractor, implement, loader or trailer
- ✓ On-farm training – experienced co-workers can do this
- ✓ Direct supervision – provide this for inexperienced operators until they reach an appropriate level of competency
- ✓ Formal training and accreditation – this provides independent, up-to-date knowledge and best practice



Maintenance

- ✓ Tractors need regular maintenance. It must be scheduled and planned, and can differ from one tractor to another
- ✓ Always read the manufacturer's operation and maintenance manual for advice
- ✓ Keep all service and maintenance records for the tractor's life



Maintenance – checklist example

Roll-over protection structures

- ✓ Tractor is fitted with ROPS – Roll-Over Protective Structure – Criteria and tests for roll over (if relevant).
- ✓ Tractor meets Approved Code of Practice for Roll-Over Protective Structures on Tractors in Agricultural Operations.

Seatbelts

- ✓ Seatbelt is provided and is in good working order.
- ✓ Seat is in good condition and each driver can adjust it.
- ✓ Note: Seatbelts are necessary if the tractor is fitted with a ROPS.



Maintenance – checklist example

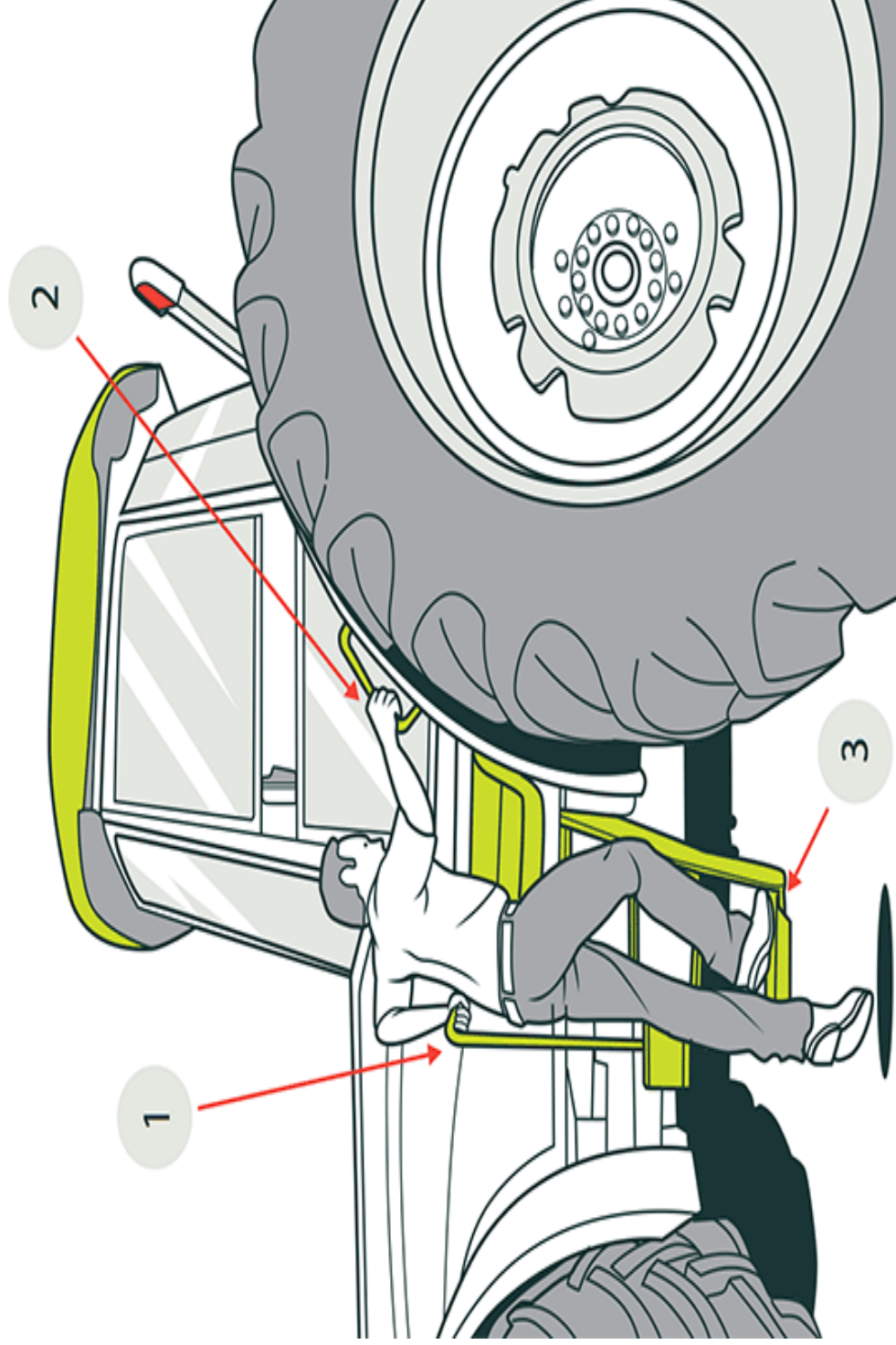
Guards

- ✓ Tractor safety guards are in place and are in good condition
- ✓ Power take-off (PTO) guards are fixed in place, functional and undamaged
- ✓ Check PTO attachments, no loose, missing or broken pins, bolts or lynch pins

Other

- ✓ Platform access, steps and handrails are secure, clean and have three points of contact.
- ✓ All gauges and lights in the cabin operate correctly when the tractor is running (refer to operator's manual).

Getting on and off the tractor



Machines

Points and danger zones of the machinery - Gear



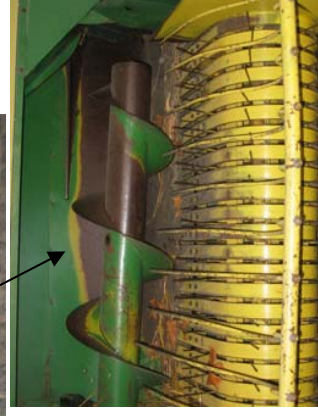
Machines

Points and danger zones of the machines - Winding



Machines

Points and danger zones of machines - Shearing



Machines

Points and danger zones of machines - Projection



Machines

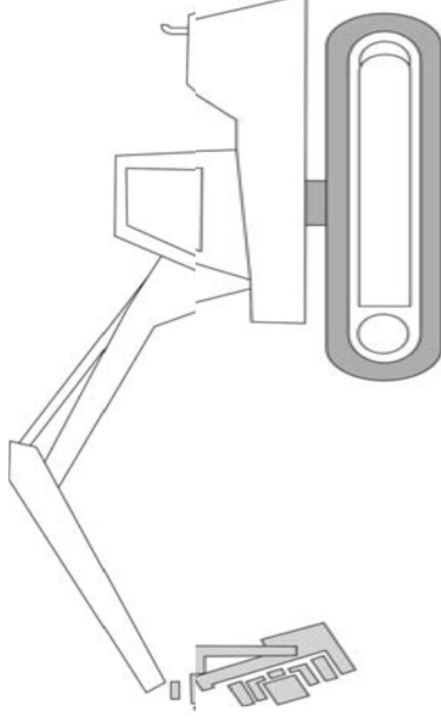
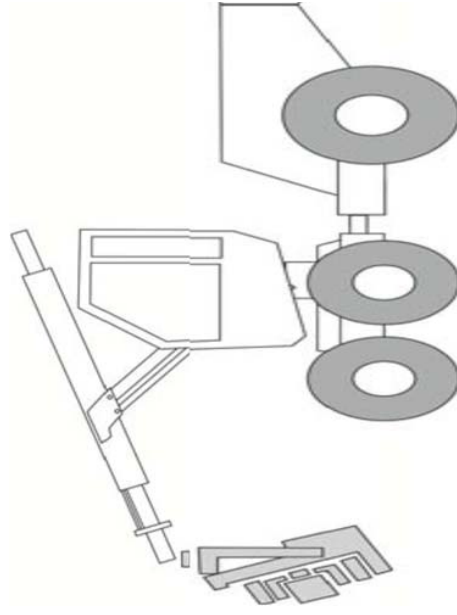
Preventive measures

- ✓ training and information to the user;
- ✓ to intervene in a machine only when it is stopped and with all its organs immobilized;
- ✓ remove all unnecessary persons from the machine;
- ✓ transmit power hydraulically;
- ✓ have in good condition and in place all safety device.



Harvesters

Forestry machines specially designed to make profitable the logging, enabling the accomplishment of operations of felling trees, cutting of branches, tracing, logging, peeling and stacking



Harvesters

Safety measures	Take special care when moving track machines over areas where there are stumps
	Checking the operating status of machinery and equipment and provide an adequate maintenance
	Read the instruction manual of the machines
	They should only use the machines, qualified employees and authorized
	Plan and organize the work, evaluate and reference the areas to be intervened and the associated risks
	The processed wood material must be left in a stable position and in order to facilitate its extraction
	Protect all rotating parts that are exposed.
	Take precautions if working close to overhead electrical cables and telephone lines

What Hazards / Risks



What Hazards / Risks



What Hazards / Risks



Tree climbing

High-risk operations	
Organization	A risk assessment should be carried out before starting work
	Tree-climbing operations should be carried out by a team of at least two people. One of the ground staff should be competent in rescue techniques
	Ground staff should maintain effective communication with the climber
Personnel	Trees should only be climbed by experienced and fully competent persons.
	Climbers should have proper knowledge and training in: safe climbing techniques; tasks performed when climbing trees, such as rigging, pruning, tree topping or seed collection

Tree climbing

Climbing Equipment

safety harness;



safety belt;

climbing ropes and strops;

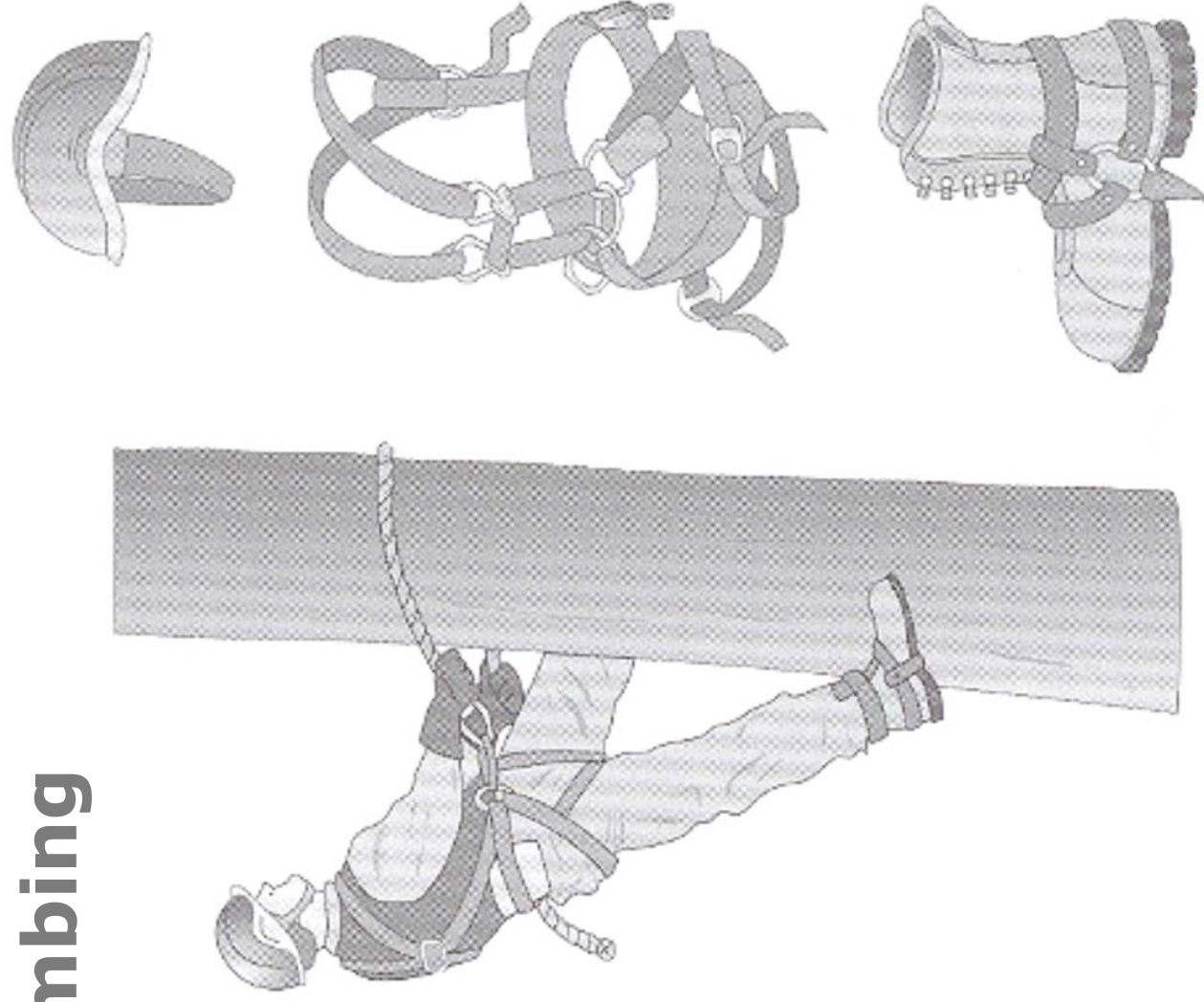


other climbing aids

boots or shoes with good grip and safety toecaps



Tree climbing



Preliminary Risk Analysis

Risk assessment map					
Date: ____ / ____ / ____					
Workplace: _____					
Operation	Surrounding	Equipments Materials	Operating Modes	Risks	Preventive measures

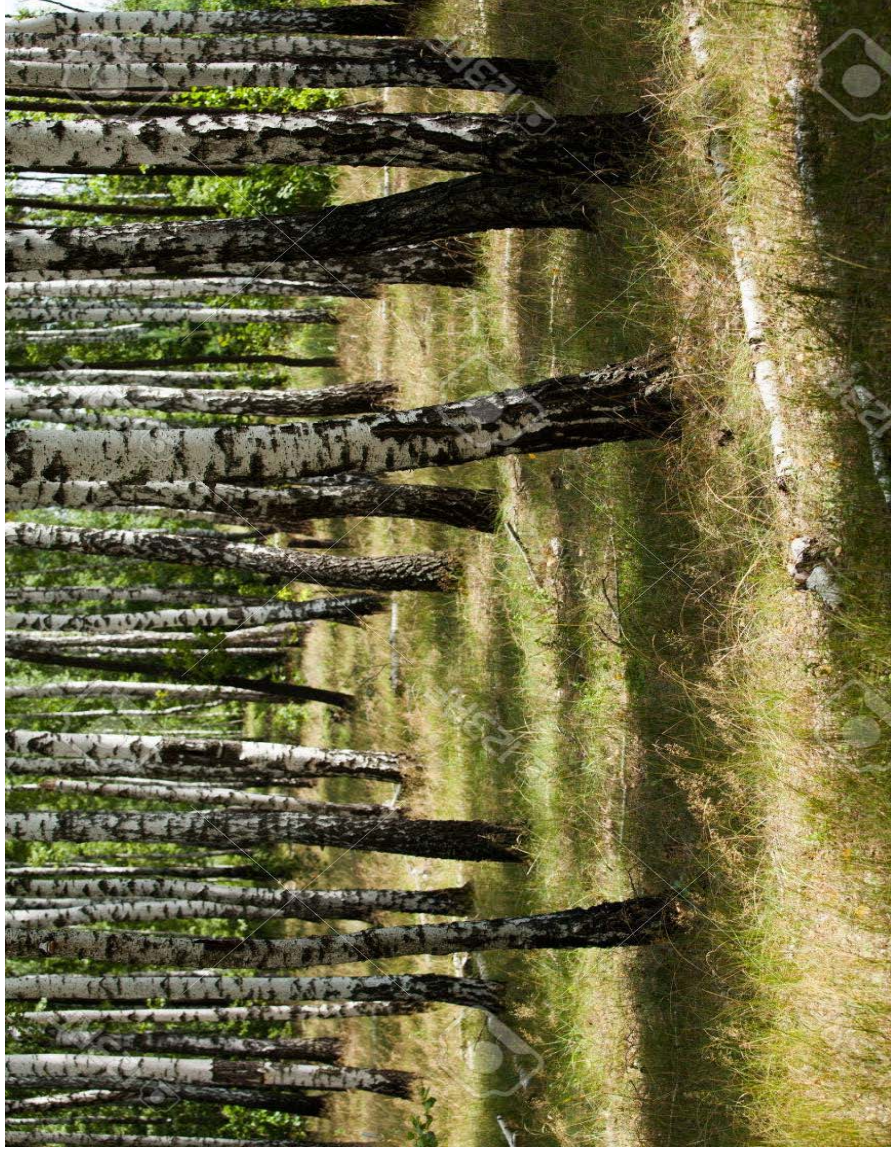
Conclusion

The framework for systematic occupational safety and health management should include:

- ✓ Development of an enterprise safety and health policy
- ✓ Assignment of responsibilities
- ✓ Identification and management of risks
- ✓ Employment conditions, qualifications, organization and training of personnel
- ✓ Provision of adequate resources and safety equipment
- ✓ Communication and information about risks and their prevention
- ✓ Documentation, reporting and monitoring

Велике спасибі за увагу

хороша робота



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Agricultural and forestry tractors and machines – data sheet



Fonte: ACT

FUNCTION

The tractor is a motor vehicle capable of delivering a high traction effort, relative to its weight, even on poorly adhering conditions, and built primarily to pull, push, carry and drive machinery and equipment for agricultural and forestry work (eg plow, milling cutter, seed drill, trailer ...).

The tractors have, in general, as wheel propulsion organs (which may be two or four driving wheels) or tracks.

DOCUMENTS AND OTHER ELEMENTS

Manufacturer:

Tractors: CE certificate of conformity and instruction manual.

Warnings and pictograms: the working bodies (PTO, hydraulic lifting system, made of hydraulic pressure coupling system of the machines) and the clutches.

Agricultural and forestry machinery: CE certificate of conformity and instruction manual

Warnings and pictograms: on moving parts and on the adjustment mechanisms of the machine.

Power take off shaft: CE certificate of conformity and instruction manual.

All of the equipment shall include the marking of elements: mark, manufacturer address (or his representative), year of manufacture, machine name and serial number.

User:

Tractors: Carnet, checks and periodic tests, CE certificate of conformity and instruction manual.

Protection structures are mandatory for tractors registered after January 1, 1994 and must be CE marked since 1996. The tractor certification is mandatory (including the protection structure) after December 29, 2009.

Agricultural and forestry machinery: Carnet (trailers), periodic checks and tests, EC certificate of conformity and instruction manual.

Power take off shaft: Periodic checks and tests, EC certificate of conformity and instruction manual.

The user must perform periodic technical inspections; maintain the safety check reports and the maintenance log.

SPECIFIC TRAINING

Operation inside the farms:

Driving license more certified training in OSH;

Driving on the road:

Driving license (see Categories with types of machines)

MORE FREQUENT RISKS

- ▶ Lateral reversing of the tractor or the agricultural / forestry machine tractor group;
- ▶ Tilting back, when the tractor is unbalanced by the weight of the machine placed on its back;
- ▶ Fall in height: access to tractor or agricultural / forestry machine;
- ▶ Crushing: when the operator loses control of the machine (eg in connection and adjustment of the agricultural / forestry machine);
- ▶ Cutting / shearing / shock or impact: cutting material (eg, knife mills), the closure of the lateral and / or posterior flaps;;
- ▶ Winding: the cardan transmission shaft, in the moving parts of machinery (gears, belts, chains);
- ▶ Overturning: During the movement of tractors, during the machine engagement, the presence of children and the elderly;
- ▶ Projection: projection broken parts, stones, sharps (eg cut bushes and rotary mowers);
- ▶ Inertia: the machines which have flywheels where the stop time is higher (eg balers).

MAIN PREVENTION MEASURES

Manufacturer:

- ▶ Restraint system (safety belts compulsory in some tractors models - see approval regulation);

- ▶ Protection of power take off shaft
- ▶ Protection of the moving parts of the machine operators, guardrails, handrails;
- ▶ warning light of slow running (firefly);
- ▶ Colocação de espelhos retrovisores.

User:

- ▶ Operator training and information;
- ▶ Assessment of the risks inherent to its use. For example in the chemical, associated with the application of pesticides, use appropriate PPE, according to the risks referred to by the manufacturers of plant protection products on the basis of the installed cabin category (see instruction manual - Categories 1, 2, 3 and 4);
- ▶ Regulation of track or gauge in the widest possible position;



Fonte: ACT

- ▶ Adequately ballast the tractor to increase the stability of the tractor-machine assembly (eg, water wheels, weight on wheels and wheel masses);



Fonte: ACT

- ▶ Keep the brake pedals together;



Fonte: ACT

- ▶ Adapt the working speed to the conditions of use;
- ▶ Prevent tractor to drive over obstacles or inside ditches or depressions;
- ▶ Always pull heavy machinery and equipment at a moderate speed and adapted to the situation (eg semi-trailers);
- ▶ Take into account the way in which the loads are packed (eg disposal of animals, bales of straw, etc.);
- ▶ Always loosen before turning in order to reduce the centrifugal force that may make the tractor-machine assembly unstable;
- ▶ Use the engine as a brake on slopes, select the speed before starting the descent and avoid reducing or halting the middle of the slope;
- ▶ Avoid working with the tractor near ditches, terraces, brooks, because they can be unstable and may collapse and cause the eversion;
- ▶ Leave sufficient space for safe manoeuvres at headwaters;
- ▶ Extreme care in the use of machines which cause the ascent of the center of gravity of the tractor (eg front loader);
- ▶ Fix the machines in the coupling points provided by the manufacturers (the lowest and advanced possible for better stability of the tractor-machine assembly) fixing them with safety pins;



Fonte: ACT

- ▶ Start gently, making skating the clutch if necessary;
- ▶ Lock progressively when downhill and march to climb back into steep slopes;

- ▶ Keep in good condition and in place all the safety devices of tractors and machines (eg safety clutches, fuse screws, protections, springs, ...);
- ▶ Cut the shafts to the proper length, fit the picks correctly and fix the chains of the protections;



Fonte: ACT

- ▶ Intervene on a machine only when it is stopped and all its fixed bodies;
- ▶ Remove all unnecessary persons from the machine (eg children and elderly);
- ▶ Proper maintenance of tractors, machinery and equipment;
- ▶ Do not modify protective structures (eg drilling, welding, ...);
- ▶ Fire extinguisher according to gross machine weight.

MAIN PROTECTION MEASURES

Equipment:

- ▶ ROPS, commonly known as "Santo António". Using the arc folded in strictly necessary situations (eg entering greenhouses, pass under the trees tops);



Fonte: ACT

- ▶ Safety framework;
- ▶ Safety cab (depending on the category of the cab, check the filter installation and replace it according to the instructions in the instruction manual):
Category 1 - no specific level of protection;

- Category 2 - dust protection;
- Category 3 - protection against dust and aerosols;
- Category 4 - Protection against dust, aerosols and vapors;



Fonte: ACT

- ▶ PTO shaft protection (Power take off shaft).

Activity site (situations to have attention in the surroundings, soil and conditions of use, etc.)

- ▶ Operation in sloping workplaces, namely terraces, ditches and logs;
- ▶ Use of the tractor in workplaces with poor adhesion and transit conditions;
- ▶ No electrical cables or other technical installations (conduits) in the work environment, for example when working with cranes.

WHAT SHOULD NOT HAPPEN, BUT IT IS COMMON

- ▶ Driving on the road with the foot brake pedals switched off, with the safety bow lowered and at excessive speed;
- ▶ Clothing arrest by moving parts of machines or the cardan shaft transmission and / or by the absence of adequate safeguards;;
- ▶ Fall in height of workers who work on platforms installed in machines;
- ▶ Change machines adaptations for work or conditions of use not recommended by the manufacturer;
- ▶ Excessive alcohol consumption;
- ▶ Absence of work planning.

REFERENCE STANDARDS

- ▶ **EN 474-1:2006** Earth-moving machinery - Safety;
- ▶ **EN 474-2:2006** Requirements for tractor-dozers
- ▶ **EN 14 930** Agricultural and forestry machinery and gardening equipment. Pedestrian controlled and hand-held machines;
- ▶ **EN 60 204** Safety of machinery. Electrical equipment of machines. General requirements;
- ▶ **EN 15 695-1:2009** Agricultural Tractors and Self-propelled Sprayers - Protection of the Operator (driver) Against Hazardous Substances.

Technical information - Forestry work

The forestry work meets a very significant set of characteristics that determine the need for observance of specific rules, particularly with regard to the organization of work, the use of work equipment, and even the use of personal protective equipment

The complexity of forestry activities and the variety of elements that integrate, require careful planning for achieving adequate levels of productivity, quality and safety.

Among other things, the plan of each intervention in the forest must address the following areas including, among others:

- Identification of the work to be performed;
- Dates, deadlines for intervention and timetable for certain works;
- Preparation of workplaces:
 - Characterization of the land;
 - Loading the loader;
 - Storage areas;
 - Accesses.
- Equipment, machinery, tools and products;
- Description of working methods;
- fell tree direction;
- Main risks and prevention measures related to the work to be carried out;
- Individual protection equipment;
- First-aid material;
- Emergency procedures;
- Appointment of the person in charge.

The planning of the work, structured in this way, allows an adequate prevention management, since it makes possible the valorisation of the following dimensions:

- The exercise of risk assessment before starting work;
- The careful selection of equipment to be used, particularly in order of the option of machines which minimize the manual transport of loads and

the risks associated with the handling of portable power-driven machinery;

- The suitability of the accesses to the work fronts and the storage places of equipment, products, tools and materials, which will result in a reduction in workload and even increase in productivity;
- The identification of professionals who should be subject to information and training processes, as well as areas which in this context should be privileged and that report to severe and frequent risks, such as they relate to working postures, the use of work equipment and the organization of work;
- The prevision and establishment of work organization systems and techniques, such as:
 - The establishment of teams for certain tasks, such as cleaning, removal of materials and loading;
 - The alternating teams work involving uncomfortable postures;
 - The elimination of isolated work situations, such as in the harvesting operation trees;
 - The provision of adequate means of communication;
 - The prohibition of access to places where they develop hazardous work and, in general, the safety signs in all situations where this is necessary;
 - Supervision of the work of competent professionals for the purpose.

Thus, prevention of occupational risks, rather than simply compliance with a set of technical rules, determines the need to develop a set of methodologies that refer to the general principles of prevention.

MAIN RISKS OF THE ACTIVITY

Hazard identification and risk assessment are the basis for the definition and implementation of a safety management program to improve working conditions. The following table provides a summary of the main risks with the use of the chainsaw and the main tasks related to forestry and its preventive measures

The Chainsaw

Risks	Safety MEASURES
Bad circulation in the fingers (white fingers disease) Blows or cuts in the lower limbs, lower abdomen, hand and right forearm Cut on left hand Several injuries throughout the body and right hand Cuts and multiple lesions 	○ Chain lock and front hand guard -Blocks current in the event of kickback of the chainsaw. Works as a left hand guard ○ Safety chain- Ease cutting and reduces rebound effect ○ Sheath - Protects the chain and blade during transport and avoids accidents when transported by the operator ○ Retainer chain - Prevents the "whip" effect by holding the chain in the event of a break ○ Anti-vibration devices - Absorbs and reduces the effect of vibrations produced by the chainsaw ○ Rear guard-rail - Protects the right hand ○ Blocker throttle - Locks the throttle control, preventing any unintended acceleration 

Pruning

Risks	Safety MEASURES
Fall of objects Projection of branches and sawdust in eyes and face Bad working postures and physical efforts Chain saw guide blade rebound Noise Vibrations Intoxication caused by gasses produced by the proximity of the chainsaw Burns Cuts	How to pick up the chainsaw: ○ The left hand on the side of the front handle, keeping the thumb always on the side inside the handle ○ The left elbow rests on the operator's trunk to prevent the chainsaw above shoulder height. How to Speed Up the Chainsaw: ○ The right hand should rotate to a position where the throttle control drive will be executed with the thumb ○ The remaining fingers will tighten the safety lock How to operate the chainsaw: ○ Touching the blade against the tree in a direction parallel to the shoulders; ○ Take advantage of the chainsaw's weight and reaction by sliding it along the tree trunk ○ Follow this reaction, flexing your legs and keeping the right back; ○ The operator must maintain a good support base when moving; ○ After making the gap between the branches, the operator must be located in this opening and put up so that the trunk of the tree is always between your body and the blade of the chainsaw; ○ The operator must position himself so as to find in the tree an intermediate point of support; ○ For pruning, the upper level should be used chainsaws with cutting organ at the end of an extendable rod, and hand tools.

Cut of trees

Risks	Safety MEASURES
Bad working postures and physical efforts Chain saw guide blade rebound Noise Vibrations Intoxication caused by gasses produced by the proximity of the chainsaw Burns Cuts	Work organization: ○ The marking of trees to be felled; ○ Prohibition of the presence of third persons; ○ Verification of equipment, materials, tools and products; ○ Realization of observations related to the trees to be cut; ○ Cleaning of surrounding areas; ○ Preparation of the cutting zone; ○ Use of personal protective equipment. Information and training of professionals: ○ felling trees; ○ felling trees of attached trees; ○ felling trees of fallen trees 

Cutting branches / scribing

Risks	Safety MEASURES
Bad working postures and physical efforts Chain saw guide blade rebound Noise Vibrations Intoxication caused by gasses produced by the proximity of the chainsaw Burns Fractures Cuts 	○ Check the position of the branch; ○ Stand on the opposite side to predictable overturning; ○ Cut the branch in several steps, from its end (6 point method); ○ Avoid working with the upper end of the guide blade; ○ Periodically check the correct functioning of the chain blocker; ○ Use appropriate gestures and postures; ○ Use personal protective equipment 

Extraction – Manual harvesting

Risks	Safety MEASURES
Bad working postures and physical efforts Cuts Falls Fall of material Crushing	○ Distances to be travelled must be minimal; ○ Provide regular breaks to reduce workload; ○ Respect biomechanical principles of safety and effort economy; ○ Use personal protective equipment. 

Extraction with Drag Tractor and Winch (Skidder)

Risks	Safety MEASURES
Bad working postures and physical efforts Cuts Noise Vibrations Falls Fall of material Crushing 	The tractors must be: ○ Complying with safety and health standards at work; ○ Equipped with high elasticity tires; ○ Equipped with front blade and back plate; ○ Mounted with the shield; ○ Equipped with winches; ○ Endowed with a steel cable whose resistance to rupture is at least twice the pulling force of the winch; ○ Have a drag or other type of support that suspends the front end of the load. The cables mounted on the tractors must have: ○ Minimum length 30 meters and sufficient strength; ○ Being firmly attached to the drum

Extraction Tractor Loader (Forwarder)

Risks	Safety MEASURES
Bad working postures and physical efforts Cuts Noise Vibrations Falls Fall of material Crushing 	○ the extracted trunks must have a uniform length; ○ Loader tractors should not be used on slopes; ○ Semi-tracks or chains shall be adjusted according to the transport and the condition of the terrain; ○ The crane should be not operated if a part of the machine is less than 15 meters from the high voltage lines.

Extraction with a cable crane

Risks	Safety MEASURES
Bad working postures and physical efforts Noise Vibrations Falls Fall of material Crushing	○ the cables, extraction masts and anchors shall be prepared prior to the slaughtering operations and the work zones marked; ○ anchoring cables must form a minimum angle of 45 ° with the extraction masts; ○ the cables must be firmly attached to the winch drum; ○ The weight of the load must not exceed the recommended weight on the machine; ○ Work cooperation between operators is very important in the manoeuvres; ○ The members of the team must know very well the communication signals; ○ The operator must be aware of and respond immediately to the stop signal; ○ No other activity shall be carried out at a distance of less than 20 meters while the cables are in motion; ○ The work area around the winch shall be clear of any obstruction; ○ The operator must not work on the angle formed by the traction cable

Loading and Transport

Risks	Safety MEASURES
Bad working postures and physical efforts Cuts Falls Fall of material Slippage	○ The delimitation of areas intended for the parking and movement of vehicles and machinery; ○ The wet weather in the access must be well drained, built on firm areas; ○ The vehicles to be loaded must be; safely parked with the parking brake actuated; ○ During the loading operation there should be no one on the vehicle platform or cab (other than the crane operator); ○ Vehicles must comply with the maximum loads established by law: - The load on trucks must be well-balanced and secured by cables, ropes or straps sufficiently robust;



- To protect the cabin against falling objects or penetration of poorly fixed trunks, cranes should be equipped with a protection (malhal) situated between the load and the cabin



APPLICABLE LAW

General Principles, Social Management and Organization of OSH

Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work

Work organization

Directive 89/656 / EEC of the Council of 30 November concerning the minimum safety and health requirements for the use of personal protective equipment by workers at work.

Directive 90/269 / EEC of the Council of 29 May on the minimum safety and health requirements for manual handling of loads.

Directive 2003/10 / EC of the European Parliament and of the Council of 6 February on the minimum safety and health requirements for the exposure of workers to the risks arising from physical agents (noise).

Directive 2002/44 / EC of the European Parliament and of the Council of 25 June on the minimum requirements for the protection of workers' health and safety in the event of exposure to risks due to physical agents (vibration).

Directive 92 / 58 /EEC of 24 June 1992 on the minimum requirements for the provision of safety and /or health signs at work

Directive 2001/45 / EC of the European Parliament and of the Council of 27 June on the minimum safety and health requirements for the use of work equipment by workers

Directive 2006/42/EC OF the European Parliament and of the Council of 17 May 2006 on machinery and amending Directive 95/16/EC

ILO Conventions and Recommendations

C155 - Occupational Safety and Health Convention, 1981

R164 - Occupational Safety and Health Recommendation, 1981

C081 - Labour Inspection Convention, 1947

R081 - Labour Inspection Recommendation

C129 - Labour Inspection (Agriculture) Convention, 1969

C184 - Safety and Health in Agriculture Convention, 2001

GLOSSARY

Felling trees - is one of the main logging operations. It consists of cutting, usually as close as possible to the ground.

Spout - Represents one of the steps of the slaughter technique. It consists of the execution of a notch in the direction in which the tree is intended to fall.

Loader - temporary place, next to the access road, that is destined to the storage of the woody material resulting from exploitation until the loading are carried out.

Loading - an operation consisting of placing the wood material on the transport vehicles that will take it to its destination.

Wood cut - elimination of existing weed cover on the ground by mechanical or manual action

Cutting branches - logging operation that involves removing the stem-downed branches and limbs to facilitate the following operations

Pruning - The act of severing branches from a standing tree.

Logging - is a set of operations required for the transfer of the woody material produced to the place of transformation, with maximum efficiency, lower cost and better environmental impact.

Extraction - a much-diversified logging operation, both in the media and in the techniques used, consists of the transfer of the wood from the place of slaughter or of the filler to the load.

"Forwarder" - the same as tractor loader.

Chainsaw - motorized saw used in the cutting of trees or cutting woody material.

Harvesters - machine specially designed to make profitable the logging, enabling the accomplishment of operations of slaughtering, cutting of branches, tracing, weaving, peeling and stacking.

Harvest - consists of the movement of the logs or whole trunks in order to concentrate the woody material next to the extraction rails.

"Skidder" - logging machine used in extraction or to harvest operations, enabling the drag trunks or logs.

Touring - processing operation of slaughtered trunks and branches into logs delivered from whose dimensions vary according to their final destination.

Log - section of trunk of a tree, sawn and clean of branches.

Tracing - an operation associated with tiring, which consists in measuring the length of the logs on the trunk.

Transport - an operation consisting of moving the wood material from the loader to the place of destination.

Extraction rails - non-permanent harvest path, which connect the loaders to the slaughtering sites.

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HEALTH AND SAFETY AT WORK IN USE OF PESTICIDES

Introduction

Plant protection products, commonly known as agricultural pesticides include a number of different substances that individuals use to protect crops and agricultural production of harmful effects caused by harmful organisms and whose action can be a pest or a disease.

According to the causal agent that must be combated, the pesticides are divided into:

Insecticides Used for insect
Herbicides Used for weeds
Fungicides Used for fungi
Acaricides Used for mites
Nematicide Used for nematodes
Rodenticides Used for rodents
Molluscicides Used for snails

A pesticide is constituted by active substance (it is the one who destroys or prevents the enemy of culture to be installed) and adjuvant (is that it supports the active substance reinforcing their action - wetting agent, dispersant ...), Fixing constituting a formulation.

Agricultural pesticides can be found in the form of:

- ☐ soluble powder;
- ☐ wettable powder;
- ☐ concentrated emulsion;
- ☐ tablets

Agricultural pesticides are toxic and its toxicity depends on fundamentally on its chemical composition and of the concentration in which they present.

The risk of poisoning depends on:

- ☐ the toxicity of the active substance;

- from the time of exposure;
- of the conditions of handling and application;
- of the environmental conditions;
- the way enter to the body

Agricultural pesticides can enter the body through different ways:

- **By digestive** - the pesticide can reach the mouth if the person to eat, drink or smoke while handling these products or lead to mouth objects or pieces of equipment for application;
- **By respiratory** - Pesticides can be found suspended in the atmosphere in the form of small particles can reach the lungs through the air we breathe;
- **By dermal** - pesticides can come into contact with the skin of the operator due to spills, splashes, use of contaminated clothing or even due to exposure to particles suspended in the atmosphere.

Pesticides can give rise to:

- Acute intoxications (symptoms occur within a short period of time);
- Chronic poisoning (symptoms are less obvious and may occur only after long exposures);
- Allergic type reactions.

The most common symptoms of intoxication are:

- **General disorders:** Weakness, cold skin, intense sweating, weak pulse, spots and skin irritation;
- **Digestive disorders:** Nausea, vomiting, salivation, abdominal pain, diarrhea and mucosal irritation;
- **Respiratory disorders:** Respiratory distress;
- **Central nervous system disorders:** Headache, motor and speech incoordination, convulsions and on the limit, state of unconsciousness.

It is a set of symptoms of a very specific nature, so it is always recommended to use medical support, since only these professionals can study possible pathological changes in health and its connection with the true causes of intoxication.

In the view of prevention of occupational risks is considered that, in addition to the situation inherent in its manufacture, there are three important moments related to health and safety of persons handling these products and that would be characterized as follows:

- before the buying by the user;
- during the acquisition, transport and using;
- after using.

Before the buying by the user

The risks of contamination are found along the chain of loading, transport, unloading and storage

The causes of accidents involving damaged packaging, handling errors, factors or mechanical nature of climate and physical chemical products degraded.

The measures adopted include its own regulations as the registration system and transport of hazardous substances means the making available of safety data sheets and requirements regarding storage system.

During acquiring, transport and use

Often the risks can worsen the actual time of buying. That is, when it simply chooses the product's toxicological class higher in the market, contrary to an indication by a previous technique linear thinking that it is more toxic kills better (maybe not the enemy of the crop to fight but quite simply the user).

The same way, there are problems during transport associated to damage to sacks, poor storage conditions, food contact, easy access to children etc



The real critical moments are found in the preparation of sauces and tank filling of application equipment and can produce poisonings by inhalation (dust and mist) direct contact with skin and mucous membranes (eyes) or indirect contact through equipment protection ineffective or poorly adapted.

So for a good use of a pesticide, the farmer should look for to identify the pest or disease to fight, making use to such techniques to advise the type of product to be used and the manner of its application, the dose, frequency the methods and equipment be used.

Fundamental rules for a good personal protection

The protection of the worker must be ensured by the use of suitable work clothes and personal protective equipment (PPE).

In the selection of this clothing and this equipment, it is always important to take into account:

- The particulars which must appear on the pesticide label;
- The written information on the characteristics (what they are for) and conditions of use and conservation of personal protective equipment that must be provided by the respective seller;
- The guarantee of the quality of this equipment (check if it has the CE mark).

In the selection of personal protective equipment and clothing will be to pay particular attention:

- **Eye protection**, especially when it comes to toxic or irritating products. The glasses should be washed frequently;
- **The protection of the nose and mouth** is essential to prevent inhalation of gases or dusts. You shall use masks when the pesticide label tells you to proceed and to filter replacement according to the manufacturer's recommendations;
- **Hand protection** when handling or applying toxic pesticides, and especially when in high concentrations. In these tasks, it is advisable to wear suitable gloves in a good condition and must be large enough and long enough (to cover the arm so that the skin is

not exposed between the glove and the sleeve). After handling pesticides, always wash hands. After the work is finished, the gloves should be washed inside and out;

- **Body protection**, preferably with a cotton work suit, with wide sleeves and legs (but tight at the wrists and ankles), easy to wash and dry;
- **The protection of the feet and legs** (either during preparation of the product or its application or in subsequent contact with the treated plants) must be ensured by the use of rubber boots, avoiding an unprotected space between the boots and the pants. After application, thoroughly wash boots inside and out.

How we must operate to a possible poisoning with pesticides

It is very important in these cases to act with serenity and speed:

- Remove the victim from the contaminated place;
- Quickly Getting the assistance of a doctor or take the victim to the nearest health centre, or even resort to SOS - poisoning which will provide the most appropriate advice on the procedures to adopt;
- Make sure the causative compound of intoxication and the possible pathway input;
- Keep the pesticide label and collect all possible accident data in order to provide the doctor with the most complete information.

Whenever possible, give first aid according to the rugged requirements and entry routes, given the indications of the label.

If the victim is unconscious, observe the heartbeat and breathing. If not, try cardiopulmonary resuscitation.

Keep the victim lying on his back with the head lower than the body and side in the case of vomiting.

If the victim has, convulsions put a cloth between the teeth to prevent biting the tongue.

As the route of entry, will still be taking other important measures:

- In the case of the skin, remove contaminated clothing and footwear and wash the affected area. Avoid rubbing the skin to not produce eruptions which facilitate absorption of toxic;
- In the case of eyes, wash them with water for 5 to 10 minutes.

Drinks or fatty foods, milk or water with olive oil should not be given as they may not be adequate and may even be harmful.

Finally, it is important to note that the affected people should always be subject to examination and medical treatment.

PRINCIPAL RISKS OF THE ACTIVITY

The hazard identification and risk assessment are the basis for defining and implementing a management program to improve health and safety working conditions. In the table below is a summary of the principal risks and its prevention measures.

Risks	Prevention Measures
▪ Risks during storage 	When buying the pesticide be sure that the package is the original manufacturer and it tends to acquire the product whenever possible less toxic; When transporting pesticides have been careful to keep them adequately isolated of food products, thus preventing any contamination; Pesticides should be stored in specific locations, so that in this way are separated from food, drink and out of reach of the children. These storage places should be locked up, away from houses and installation of animal well-ventilated and ventilated; The products shall be stored on metal shelving and separated by class, the most toxic in places



of difficult access;

The packages should be kept in good condition and properly labelled;

The protective equipment must not be stored inside the storehouse

Risks during the tank mix



Before using the product should read the label carefully and follow its recommendations to know:

- How to use;
- When should make treatment;
- How should apply the product;
- Type of protective equipment to be used.

During the tank, mix should not eat, drink or smoke.



Employees with injuries should not be involved in preparation of spray solution;

The tank mix must be made:

- Far from home;
- Close to a cold water outlet;
- Without the presence of children;
- Far from installations to animals;
- should be used for materials and equipment specific to this operation;
- Pay attention to the wind direction.

The Packages of products must be handled with care to ensure its integrity;

The containers filled with a product ready for use should not be left without surveillance;

You should calculate the volume of spray solution needed to treat the area to avoid surplus;

Empty containers and other containers used (washing them repeatedly in running water) at



 	the end of treatment; The remnants of the mixture and rinsing water should not, under any circumstances be dumped in sewers, drains or nearby water sources, not to contaminate them; After to handle the pesticide, you should wash your face and hands, even if they have used protective equipment.
Risks during the pesticide application  	Employees with injuries should not be involved in the application of pesticides; Use protective equipment and clothing, taking account of the toxicity of the product to be applied; The application of pesticides should be always done: ☐ In times of lower heat; ☐ On days without wind. In case you have to apply on days with strong wind or breeze, these operations should be conducted into the wind to avoid breathing dust or spray. Avoid where possible, carry out the treatments during flowering, with products hazardous to bees. However if you do, make an application in the early morning or late afternoon; Do not unblock the nozzles with the mouth, not eat, drink or smoke during the application the product; After the application of plant protection products should:

	☐ Take off work clothes, wash them well as any protective equipment; ☐ Take a shower
Risks arising from the application of pesticides in agricultural products	Follow strictly with the Confidence Interval on the label referred to the culture that was about. Agricultural products can only be collected after the interval passed, since only thus, the present waste is not dangerous to the health of consumers.

I – Employer Identification	
Social designation: _____	
Tax Identification Number: _____	
Head office: _____	
Workplace: _____	Main activity: _____
Number of employees: _____	
Risk assessment carried out by : _____ Function / position: _____	
Date: _____	

II- Risk Assessment					
Task / Workplace	Danger	Risks	Preventive measures	Measure already implemented	Measure to implement
					PPE

III- Workers' health
The health examinations were carried out on workers: Yes ☐ No ☐
Scheduling health exams: _____
The risks identified above (TABLE II) were made known to the doctor who carried out the health examinations: Yes ☐ No ☐

IV- Analysis of the Risk Assessment Table / Schedule of Health-Safety Measures / Recommendations:

The Employer / designated worker

_____ Date: _____

Signature (responsible for the evaluation)

V- Monitoring and updating of Health-Safety Measures			
Measure to implement	Implementation date	Update	

	RISK ASSESSMENT REPORT	
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Annex 1- Information note to the risk assessment instrument

Risk assessment is the basis for effective management of safety and health and is essential in reducing occupational accidents and diseases. If done well, this assessment can improve the safety and health of workers and, in general, the performance of companies.

In the workplace, the employer has a general duty to ensure the safety and health of workers in every aspect related to work.

The **concept** that are the basis of the risk assessment framework are:

Identification Task: Any activity developed by the worker in the workplace;

Hazard Identification: The intrinsic property of a facility, activity, equipment, agent, or other material component of the work with potential to cause damage. That is, any situation that may cause damage to the worker;

The Risk Identification: The probability of the damage materialized according to the conditions of use, exposure or interaction of the material component of the work that presents a hazard. In other words, everything that can happen when the worker is in danger;

PPE: personal protective equipment.

The identification of the Preventive Measure in relation to risk: a measure that, although the worker is in danger, may avoid or limit the consequences of exposure to this risk. The priority for taking preventive measures is the elimination of risk. If you are unable to select an option with less risk or the adoption of machine protection measures or changing the organization of work, should be used personal protective equipment. To identify the preventive measures, should take into account the frequency with which the worker is exposed to the risk and severity of exposure. The higher the frequency and severity, the greater the need for immediate application of the measure.

 AUTORIDADE PARA AS CONDIÇÕES DO TRABALHO	RISK ASSESSMENT REPORT	
--	--	---

Measure already implemented: The preventive measure was identified and applied in the workplace;

Measure not implemented: The preventive measure has not yet been implemented in the workplace.



MAINTENANCE RECORD



Equipment: _____

Nº **Serial** _____ **Model:** _____

Nº Serial _____

Model:

[illegible]

The responsible

Date: ____ / ____ / ____ signature: ____ As: ____



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EU-ILO Project

«Enhancing the labour administration capacity to improve working conditions and tackle undeclared work»

Module 6

Risk management in Forestry

Training for trainers

“OSH risk management methodologies and labour inspectors’ gesture in Agriculture / Forestry”

Антоніу Сантуш / António Santos
Менеджер проекту / Project manager

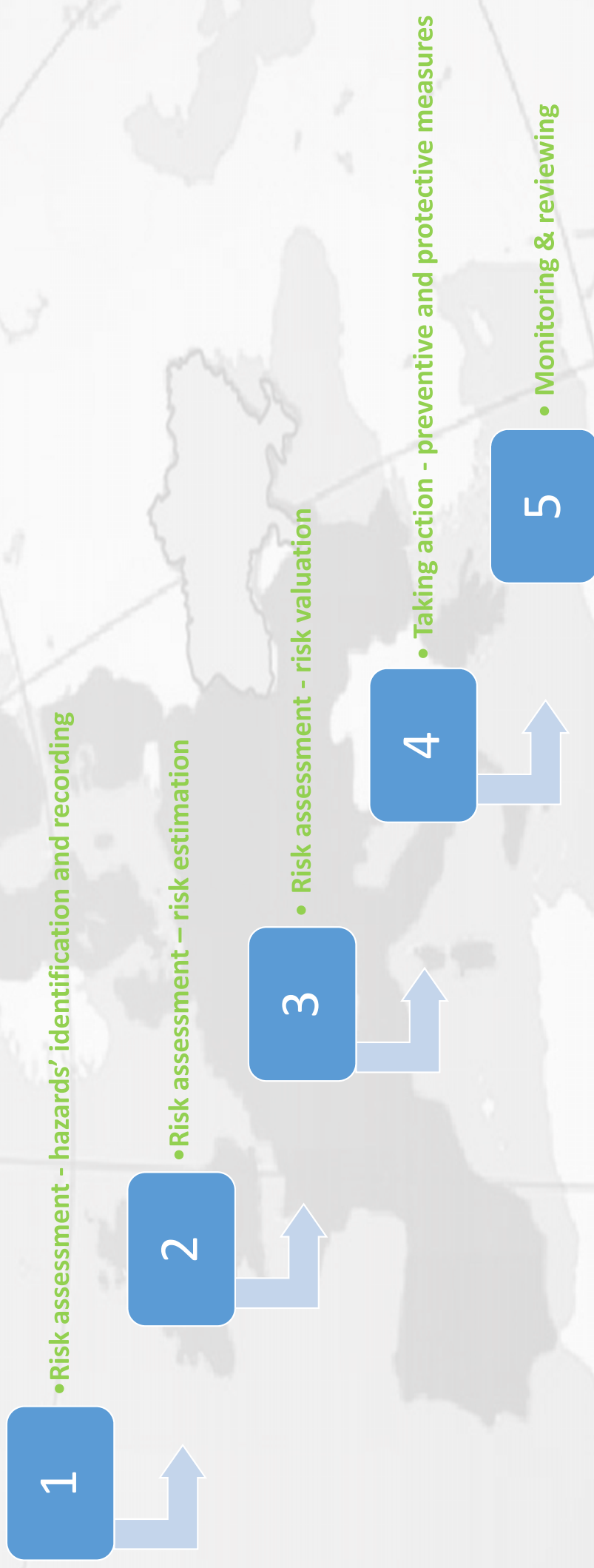
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Content



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Risk management steps



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Risk assessment

1

- Basis for managing health and safety and for ensuring a safe and healthy working environment.

2

- Legal obligation (that has to be fulfilled in writing).

3

- Process of evaluating the health and safety risks from workplace hazards.

4

- Systematic examination of all aspects of the work, in particular: (a) what can cause injury or harm; (b) whether the hazards could be eliminated; and, if not, (c) which preventive or protective measures are (or should be) in place to control the risks.

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Risk assessment - hazards' identification and recording

Identify all possible hazards within the production process, considering every factor and aspect, in particular, regarding:

- 1. Human:** lack of physical or mental capacity, lack of knowledge or skills, lack of competence, right attitude or behaviour.
- 2. Equipment:** machines, hand tools, software and hardware, tables or chairs.
- 3. Environment:** light, noise, climate, temperature, vibrations, air quality or dust.
- 4. Product:** dangerous substances, heavy loads and sharp or warm objects.
- 5. Organization:** workplace layout, tasks, working hours, breaks, shift systems, training, systems of work, communication, teamwork, contact with visitors, social support or autonomy (European Agency for Safety and Health at Work).

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Risk assessment - hazards' identification and recording

Don't forget:

1. Break complicated activities down into simpler tasks in order to identify hazards in more detail;
2. Discuss possible hazards with those working at the workplace;
3. Keep in mind support activities that may only occur once in a while but may be even more hazardous because of its infrequency (e.g. maintenance work, cleaning and preparation activities, stock counts, borehole drilling);
4. Consider activities taking place outside the premises;
5. If the workplace is visited by strangers (e.g., suppliers, schools, tourists or shoppers) remember that they are even more vulnerable (since they are not familiar with the workplace and its risks);
6. Take into account special vulnerable workers (younger workers, pregnant women, elder workers, migrant workers and seasonal workers);
7. Consider incidents and accidents (and their consequences) occurred in the past and remember that usually the near misses and near hits come back as accidents;
8. Make a list of the hazards;
9. Number them;
10. Avoid omissions and repetition.

Risk assessment – risk estimation

Once the hazards have been listed, it is necessary to assess them to determine the risk level.

Risk level depends on several factors such as:

- **Likelihood** (probability) of the hazard occurring - is the chance that harm will occur and it is affected by the preventive measures already in place;
- **Severity** of the impact once the hazard has occurred - represents the magnitude of the outcome (injury, ill health, loss, damage) and it is affected by the nature of the hazard and the protective measures implemented;
- **Frequency** and duration of exposure to the hazard;
- **Population** — the number of people exposed.

The combination of the selected factors determines the risk.

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Risk assessment – risk estimation process



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Risk assessment – risk estimation

Assessment factors:

Risk depends on several factors. For practical purposes, only **two** of these factors (assessment parameters) will be used: **likelihood and severity**.

Levels / scores of assessment factors (likelihood and severity):

Likelihood / Probability

Scores	Description
1	Improbable
2	Unlikely
3	Possible
4	Very likely
5	Almost certain

Severity

Scores	Description
1	Insignificant
2	Moderate
3	Serious
4	Disabling event
5	Life threatening

Risk assessment – risk estimation

Estimate the risk level⁽¹⁾:

Severity		Likelihood /Probability				
		1	2	3	4	5
	Improbable		Unlikely	Possible	Improbable	Unlikely
1	Insignificant	Trivial (1-3)	Trivial (1-3)	Trivial (1-3)	Minimal (4-6)	Minimal (4-6)
2	Moderate	Trivial (1-3)	Minimal (4-6)	Minimal (4-6)	Moderate (7-9)	Substantial (10-15)
3	Serious	Trivial (1-3)	Minimal (4-6)	Moderate (7-9)	Substantial (10-15)	Substantial (10-15)
4	Disabling event	Minimal (4-6)	Moderate (7-9)	Substantial (10-15)	High (16-25)	High (16-25)
5	Life threatening	Minimal (4-6)	Substantial (10-15)	Substantial (10-15)	High (16-25)	High (16-25)

Observation (1):

Risk = Likelihood X Severity

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Risk assessment – risk valuation

Risk level and its valuation determines the nature and urgency of the preventive and protective measures to be taken

Risk level		Preventive and protective measures and respective timetable
16-25	High	Stop activity immediately until control measures are taken and the level of risk has been reduced
10-15	Substantial	Make the situation safe within a week — meanwhile, take temporary measures
7-9	Moderate	Make the situation safe within a month
4-6	Minimal	Make the situation safe within a year
1-3	Trivial	Continue implementing current protective and preventive measures — keep under review

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Risk management – taking action – implement preventive and protective measures

1. **Identify the measures** to be taken to eliminate or reduce the risk;
2. When deciding the measures, **bear in mind the GPP**, by this order:
 - a) Avoid risks;
 - b) Eliminate the source of hazard;
 - c) Replacement the source of hazard;
 - d) Reduce the hazards stemming from the source;
 - e) Isolate the source of hazard;
 - f) Protect personnel using collective and personal protective equipment.
4. **Minimize human error**, especially through the provision of training, information, consultation and participation;
5. Ensure the **health surveillance** of workers; and
6. **Draw up and implement a OSH prevention plan** which assigns **people with responsibility** for implementing the control measures and sets up the corresponding objectives, indicators, targets and **time frame** for completion.

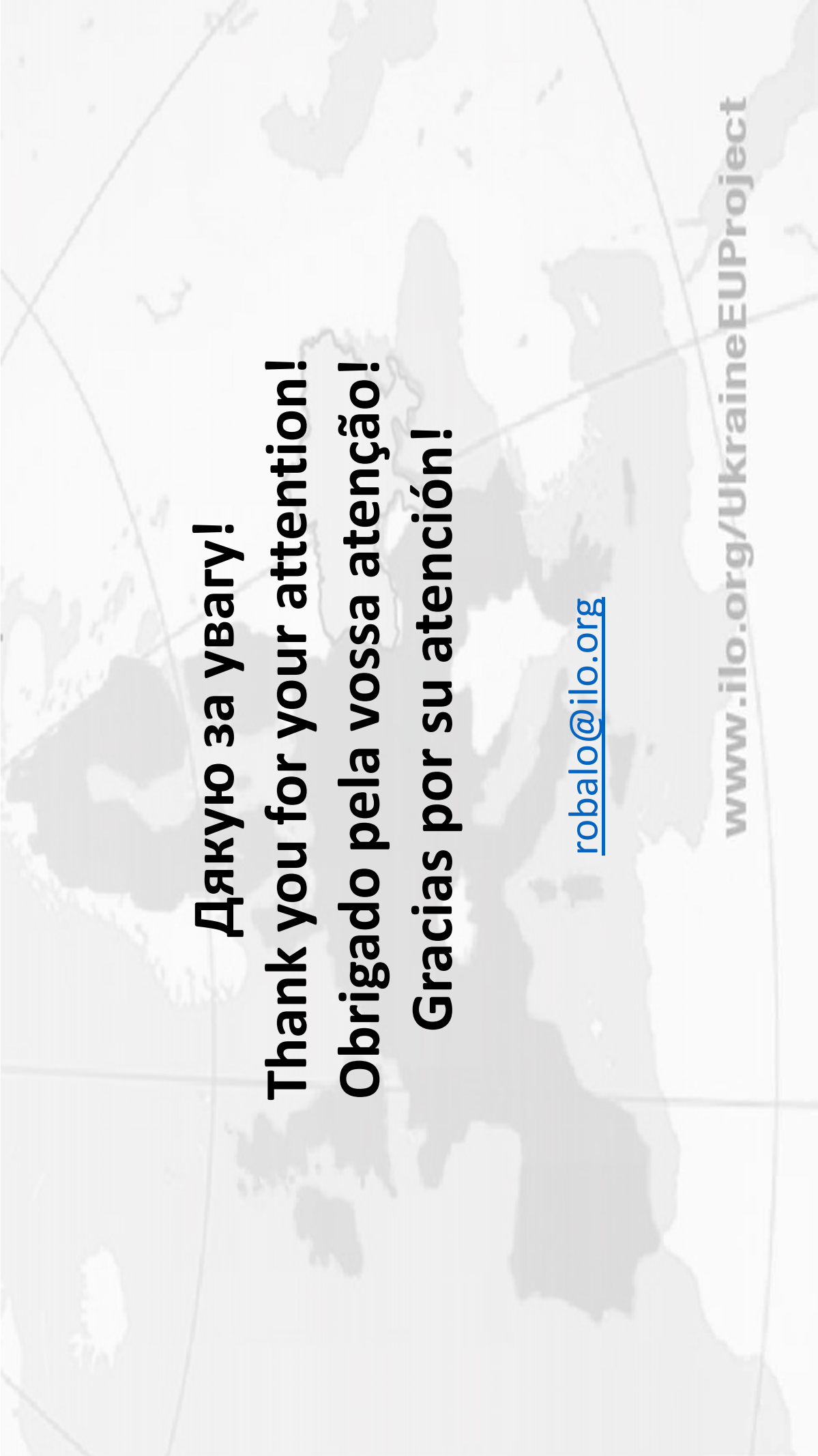
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Risk management – monitoring and reviewing

1. Monitor, control and follow-up the implementation of the OSH prevention plan;
2. Remember that you cannot eliminate all hazards but you can keep them under control;
3. After the control measures are implemented, a hazard needs to be reassessed in light of the new circumstances: its likelihood will probably be decreased due to the preventive measures taken; its severity may also change, due to the protective measures.
4. Where does this end? It doesn't. It must be regularly reviewed and monitored: people change, facilities wear out, equipment and machinery are replaced, accessories are added, technology progresses, hazards may change with the seasons, some hazards will automatically disappear if their source has been removed, new hazards may be created;
5. Therefore, risk assessments must be kept up-to-date;
6. Review and reassess potential hazards and risks after every major change;
7. There will always be something to be aware of as long as you have people performing an activity, no matter how simple or complicated



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A faint, light gray map of Europe serves as the background for the slide. The map shows the outlines of the continents and some major water bodies.

Дякую за увагу!
Thank you for your attention!
Obrigado pela vossa atenção!
Gracias por su atención!

robalo@ilo.org

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Forestry Work Checklist

Chainsaws

Situations to verify	C	NC	NA
All areas of forestry intervention are covered by the work plan?			
The chainsaws and their appropriate tools (hooks, graps, tree felling lever, tweezers, etc.) are adequately used in every situation?			
Workers are competent to use the machinery and the work equipment?			
The safety working procedures are established and in use by the workers?			
The safety working instructions for machinery and work equipment are available at the worksite?			
The workers use the appropriate PPE, according to the law?			
The PPE used by workers are in good and useable conditions?			
The workers are provided with proper certified PPE (with CE marking) suitable for the job (e.g., gloves, helmet with visor and ear protection, steel-toed boots, safety trousers)?			
The chainsaws have safety devices and kept in good condition?			
The cutting elements (saws) are protected during transport (with a protective sheath)?			
The chainsaw operators have sufficient training, information and knowledge to work with the work equipment?			
What is the method for the extraction of the woody material used:			
- Manual harvest?			
- Tractor with Forest Trailer and Crane?			
- Forwarders?			
- Skidders?			
The loading and transport of the material is performed taking into account the safety measures for the various operations inherent in it?			
The worksite has the appropriate and sufficient safety signs regarding the risks to which the workers are (or might be) exposed?			
The transport and storage of products working procedures are appropriate and followed by the workers (particularly in the proximity of traffic routes)?			
The workers had been trained and informed about and have knowledge of the communication signals code?			
The workers were provided with appropriate OSH training on the use of chainsaws?			
The workers have been informed about the occupational risks to which they are (or might be exposed)?			
The workers have been informed about the OSH preventive and protective measures that have been implemented?			
The civil responsibility of the employer regarding the compensation of the workers for the damages arising from work-related accidents and			



Situations to verify	C	NC	NA
occupational diseases have been transferred to the proper insurance or social security system?			
The employer is complying with its obligation to ensure the statutory payments of such insurance or social security schemes, on behalf of the workers?			

Legend:

C – COMPLIANT NC – NOT COMPLIANT NA – NOT APPLICABLE

Comments / Specifications:

[illegible]

Place and date:

The Labour Inspector



Working group

CASE STUDY

Case study

In the visit to a work front, a tree fell, as shown in the following pictures, and a fatal work accident occurred.



Questions

- 1) Based on the pictures provided, what failures may have occurred?
- 2) Before starting the work what procedures should the employer have adopted in order to avoid the accident?
- 3) What types and equipment characteristics should have been provided by the employer?

EXERCISE

Risk assessment map Date: ____ / ____ / ____ Workplace: _____					
Operation	Surrounding	Equipments Materials	Operating Modes	Risks	Preventive measures

Questions:

Which areas of OSH should be covered by a forest intervention plan?

What are some basic rules in work situations with use of a chainsaw?

Falling of trees

In the felling of pruning branches of tree felling and cut trunk operations indicate according to the risks, what measures should be taken in the context of work organization and training?

Personal protective equipment

What Personal protective equipment (PPE) appropriate for forestry operations?