

# OCCUPATIONAL RISK PREVENTION



► GUIDE TO BEST PRACTICES IN

## OLIVE FARMING

**Edita:**

Consejería de Empleo  
Dirección General de Seguridad y Salud Laboral

**Producción y redacción:**

Fundación Andaluza Fondo de Formación y Empleo

**Diseño:**

la azotea, arte y diseño

**Impresión:**

J. DE HARO

**Depósito Legal:**

## **presentation**

Article 18 of the OCCUPATIONAL RISK PREVENTION LAW requires entrepreneurs to inform their workers of risks that may affect their health and the necessary preventive measures they must take to prevent such risks. In turn, workers, apart from being the ones with most to gain from the maintenance of adequate and optimum health and safety conditions, must also fulfil certain obligations in relation to individual self-protection and collaboration with farm managers in the adoption of preventive measures, correct use of machinery, work equipment, etc.

With this purpose in mind, and in line with the philosophy behind the Occupational Risk Prevention Law, this guide aims to provide workers in the olive sector in Andalusia with brief, easy-to-understand and graphic information on the risks present during the main operations performed throughout the entire olive crop cycle, and which account for most accidents in this sector. It also provides recommendations on preventive measures for eliminating or controlling these risks.

We hope that this guide contributes to the improvement of safety and health in the olive farming sector. It is mainly intended for workers since they are undoubtedly a key element in the necessary transformation of the olive sector in Andalusia.



<b>INDIVIDUAL PROTECTION EQUIPMENT</b>	<b>7</b>
<b>PORTABLE FIRST-AID KIT</b>	<b>11</b>
<b>REFUELLING OPERATIONS</b>	<b>13</b>
<b>HARVESTING</b>	<b>15</b>
Handpole beating	17
Harvesting of fallen olives	20
Portable machinery	29
Use of tractors	32
Hydraulic hoists	33
Access to work areas	35
Use of ladders	37
<b>PRUNING</b>	<b>39</b>
Use of chainsaws	40
Use of manual pruning tools	51
Use of pneumatic pruners	54
Other precautionary measures	55
<b>CRUSHING OF PRUNING REMAINS</b>	<b>57</b>
<b>USE OF PORTABLE SHREDDERS</b>	<b>61</b>
<b>PHYTOSANITARY TREATMENTS</b>	<b>67</b>
<b>TRACTORS AND THEIR RISKS</b>	<b>87</b>



## INDIVIDUAL PROTECTION EQUIPMENT (IPE)



**This** is equipment to be worn or held by workers in order to protect them from risks.

Before using such equipment, workers must:

- **Ensure** that the equipment in question is certified (CE conformity marking). This guarantees that it has been designed in accordance with safety criteria.
- **Use and maintain** the equipment in question in accordance with manufacturers' instructions.

The following aspects must also be taken into consideration:

- **Incorrect use of IPE may**, in addition to not providing protection, create a false sensation of protection, thus increasing risk for workers.
- **The use of IPE** must be personal for various reasons:
  - Hygiene.
  - IPE must be adapted to the anatomical characteristics of the individual using the equipment and the user must be responsible for its maintenance and conservation.

The following **table** (1) shows the individual protection equipment associated with the different tasks and operations performed during olive harvesting.





TASK OR WORK TO BE PERFORMED	INDIVIDUAL PROTECTION EQUIPMENT (IPE)
<b>HARVESTING</b>	<ul style="list-style-type: none"><li data-bbox="565 600 879 673">▶ <b>HANDPOLE BEATING</b> Gloves, protective eye goggles and high-length steel-capped safety boots</li><li data-bbox="565 682 879 755">▶ <b>HARVESTING OF FALLEN OLIVES</b> Gloves, knee pads and high-length steel-capped safety boots</li><li data-bbox="565 764 879 846">▶ <b>WORK WITH BLOWERS AND MOTORIZED OLIVE HARVESTERS</b> Gloves, protective eye goggles, protective earphones and high-length steel-capped safety boots</li></ul>
<b>PRUNING</b>	<ul style="list-style-type: none"><li data-bbox="565 991 879 1210">▶ <b>WORK WITH CHAIN-SAWS</b> Protective goggles, anti-cut non-slip gloves, protective earmuffs or earphones, warm form-fitting clothing for cold days, high-length steel-capped safety boots, protective anti-cut clothing (leather apron or safety overalls, chaps, trousers, work overalls, etc.) and helmet with adjustable visor</li><li data-bbox="565 1310 879 1374">▶ <b>WORK WITH PORTABLE PRUNING TOOLS</b> Gloves, protective goggles and high-length steel-capped safety boots</li><li data-bbox="565 1419 879 1483">▶ <b>WORK WITH PNEUMATIC PRUNERS</b> Metal-tipped gloves, protective goggles and high-length steel-capped safety boots</li></ul>



TASK OR WORK TO BE PERFORMED	INDIVIDUAL PROTECTION EQUIPMENT (IPE)
<p><b>WORK WITH MANUALLY-POWERED SHREDDERS</b></p>	<ul style="list-style-type: none"> <li>▶ High-length steel-capped safety boots</li> <li>▶ Anti-reflective overalls and leg guards, preferably leather</li> <li>▶ Warm form-fitting clothing for cold days</li> <li>▶ Protective goggles</li> <li>▶ Protective gloves, preferably leather</li> <li>▶ Protective earmuffs or earphones</li> <li>▶ Protective face shield (grille or transparent plastic screen)</li> </ul>
<p><b>PORTABLE SHREDDERS</b></p>	<ul style="list-style-type: none"> <li>▶ High-length steel-capped safety boots</li> <li>▶ Protective gloves for clearing or shredding work, preferably leather</li> <li>▶ Anti-reflective overalls and leg guards, preferably leather</li> <li>▶ Protective face shield (grille or transparent plastic) or protective eye goggles</li> <li>▶ Protective earmuffs or helmets</li> </ul>
<p><b>PHYTOSANITARY TREATMENTS</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Head</b> → Hats, caps or hoods</li> <li>▶ <b>Face and eyes</b> → Protective goggles and face shields</li> <li>▶ <b>Arms, torso and legs</b> → Boiler suit-type protective suits and aprons</li> <li>▶ <b>Hands</b> → Gloves</li> <li>▶ <b>Feet</b> → High-length boots</li> <li>▶ <b>Mouth and nose</b> → Protective breathing masks</li> </ul>

Table 1



## PORTABLE FIRST-AID KIT AND MOBILE TELEPHONE



**I**t is obligatory for each work site or area to have a **fully-equipped portable first-aid kit** with the necessary materials for initially treating wounds, cuts, haemorrhages, knocks, anti-histaminic drugs for treating allergic reactions from insect bites, etc. as well as means to **communicate with emergency** or similar medical services, e.g. a mobile telephone.





## REFUELLING OPERATIONS FOR MACHINERY AND PORTABLE WORK EQUIPMENT



**This** type of work equipment (motorized olive harvesters, chainsaws, blowers, shredders, etc.) must be refuelled in strict compliance with the following instructions:

▶ **Refuel equipment using a certified fuel can.**

▶ **Refuelling operations must always be performed with the motor off.**

▶ **Take all precautions to prevent fuel spilling onto the chainsaw. In the event of spillage, immediately clean the area and the equipment to control the risk of fire, leave it to dry in the open air and start the motor at least 3 metres from the place where the spill took place.**



▶ **Refuel in the open air or in a ventilated place.**

▶ **Smoking is prohibited during refuelling operations due to the risk of fire.**



► To refuel a chainsaw is obligatory to use a certified fuel can, to turn off the machine and to use an individual protection equipment.

NO



YES



**Most** occupational accidents occur during harvesting operations, due, among other reasons, to the large number of people involved in the different harvesting tasks. Agricultural machinery is used on many farms, and harvesting work is performed on uneven ground and in adverse weather

conditions, thus increasing the risk of accidents. Operations are also often performed at an intensive pace to speed up work and shorten the duration of harvesting.

The main risks during olive harvesting are:

### Main Risks

- Cuts and pricks from branches and leaves.
- Knocks to the face or eyes caused by rebounding branches.
- Projected particles and olives, which hit workers in the face and eyes.
- Falls, twisted ankles, sprains and knocks due to uneven ground surfaces.
- Fatigue and muscular-skeletal problems which is often aggravated by low temperatures.
- Vibrations and noise deriving from the use of agricultural machinery (e.g. vibrators, blowers, tractors).
- Knocks, running over and falls deriving from the use of work equipment and machinery.





CAUSE	% ACCIDENTS WITH LEAVE
Muscular-skeletal lesions	30 %
Falls at ground level and stepping on objects	21 %
Falls from different heights	12 %
Knocks against immobile objects	12 %
Knocks and cuts from objects, tools, branches....	11 %
Other causes (machinery...)	14 %

Table 2

Source: Union of Small Crop and Livestock Farmers of Jaen (UPA-Jaen). Technical Safety and Occupational Health Department.

Therefore, the adoption of safety practices and habits such as those described below is essential since these will help to dramatically reduce the number of accidents that occur year after year on thousands of farms and olive groves in Andalusia.



### Handpole beating. Olive harvesters.

#### Knocks, pricks and injuries to face, eyes and hands

Handpole beating (vareo) is normally carried out in December, January and February, either manually by olive harvesters (vareadores) using long poles or using mechanical vibration equipment (motorized vibrators). To perform this task, the harvesters must stand under the crown of the tree. They are frequently pricked by branches and leaves and particles and olives fall onto their faces and into their eyes while they beat the branches to knock the from the trees.

NO



YES



► Eye pricks and injuries can be avoided by making it obligatory for workers to wear goggles; and hand injuries caused by knocking branches can be avoided by wearing gloves.



## Overstraining and muscular fatigue

Harvesters performing handpole beating often suffer muscular-skeletal pain due to the strain on back, arms and elbow and wrist joints. Injuries include pulled back muscles, overstrained shoulders and arms and wrist and elbow joint lesions, etc. Spinal lesions are also common because workers are required to hold their arms above their heads for long periods of time.

▶ **Take micro-pauses and stretch arms and neck to recover from muscular fatigue.**

▶ **Alternate tasks during the day to avoid repetitive movements that may cause overtraining.**

▶ **Stand firmly on the ground to avoid falls at ground level caused by slipping.**

▶ **Use the shortest pole possible and these should always be under 4 kg in weight.**

▶ **Do not bend over backwards when pulling back the pole to beat branches.**

▶ **Do not twist your trunk during beating.**

► Preferably use beating poles manufactured from synthetic materials rather than traditional wooden poles, which are heavier and more rigid.

NO



YES





## Harvesting of fallen olives and movement of loads.

### Olive pickers

#### Overstraining and forced postures

When farms do not have machinery for collecting olives that have fallen to the ground, these must be gathered manually (task known as soleo) by the workers, who spend most of time squatting on their knees with their backs arched. These workers often complain of knee pain and injuries, as well as back pain (lumbago) and rheumatic joint problems.



NO

YES

► **When hand-picking olives, workers must use proper gloves and knee pads. These knee pads will protect knee joints, make knee movement easier and enable more comfortable back and leg positions.**

► Workers must keep their backs as straight as possible in all postures when hand-picking olives.

► They must avoid working in a “squatting position” for long periods because this may cause serious injuries to leg muscles.

NO



YES



► Workers are recommended to alternate hand-picking of fallen olives with other tasks (gathering of mantones, canvases or nets for collecting olives, handpole beating, etc.); or take short but repeated rests throughout the working day.



A common task in olive harvesting is the dragging of canvases or nets on which olives are gathered. To control risks deriving from such work, the following measures must be adopted:

▶ **Wear non-slip shoes and stand firmly to avoid slipping during dragging operations.**

▶ **Dragging must be performed by various people.**

NO



YES

▶ **Olives must be unloaded from the canvases or nets if these weigh more than 25 kg. This step is particularly important on wet and moist ground, which is more resistant to dragging.**

▶ **Flex your legs, do not bend over and avoid abrupt movements when dragging canvases or nets.**

To control muscular-skeletal problems associated with load handling and movement, the following measures must be adopted:

▶ **To transport loads weighing more than 25 kg, ask another person to help or use mechanical means.**



▶ **Use baskets with handles and in good condition.**





► When moving loads, the following sequence must also be adopted:

① Stand with your feet apart and place one foot further forward than the other.

NO



YES

② Flex your legs but do not bend your back.



③ Hold the load firmly and close to your body.

NO



YES



④ Straighten up slowly, keeping your back straight.

⑤ Do not twist your trunk when holding the load.

⑥ Transport the load upright, holding it close to your body.



► **Fruit is sometimes loaded manually onto trailers that are at a higher height than that of the workers, requiring them to lift baskets above their shoulders and sometimes above their heads. If this is the case, the baskets must be lifted onto special platforms or workers can take advantage of the unevenness of the land (ditches and elevations); loads must be lifted at the lowest height possible.**

► **Workers are recommended to alternate tasks involving the lifting of weights or bundles with other tasks.**

### Falls at ground level

Farming land is often uneven and is sometimes on very steep slopes. Since harvesting is performed between December and February, mud, water and frozen ground are often present during the early hours of the working day, and are conducive to falls and slipping, which may cause sprains, twisted ankles or similar injuries. To control this risk, workers must:

NO



YES



► **Use boot-type safety footwear with adequate grip. This type of footwear also protects workers against low temperatures.**



► **Avoid walking on canvases or nets, especially in areas where the grass and ground are wet.**

**NO**



**YES**

**Use of portable equipment:  
blowers, motorized olive  
harvesters and electric  
olive harvesters.**

**Noise, vibrations and  
muscle overstraining**

Although the gradual introduction of equipment and machinery in olive harvesting operations has improved working conditions, this type of portable equipment can also cause damage and injuries.

NO



YES



► **When using blowers and olive harvesters, workers must use ear protectors because high noise levels can cause hearing loss. Protective ear-phones or earmuffs should be used instead of disposable ear-plugs because the latter can become dirty very easily and cause ear infections.**



► **Workers must wear safety harnesses or rubber shock-absorbers with snap hooks to minimise machine movement and vibrations during usage.**

NO



YES

► **Workers are recommended to use harnesses fitted with elastic rubber straps and padded backing so that machine weight is distributed more evenly on the user's shoulders and to reduce muscular stress.**

► **Workers are recommended to alternate tasks and take short but repeated breaks.**



### **Burns and fires**

To avoid these risks when refuelling motorized olive harvesters and blowers, workers must follow the instructions provided in the section on refuelling operations for machinery and portable harvesting equipment such as motorized olive harvesters, chainsaws, blowers, shredders, etc.



**Use of tractors equipped with a front vibrators and self-propelled vibrators.**

**Knocks and running over**

Tractors, trailers, all-road vehicles, loading hoists and buggy-type self-propelled vibrators are used during harvesting. These machines cause frequent knocks and accidents involving the running over of workers. To prevent these risks, the following measures must be adopted:

**NO**



**YES**

► **Workers must not stand within the operating radius of the machine. A safety distance of 10-12 metres must be maintained at all times.**



► **Workers responsible for operating and manoeuvring these machines must activate the acoustic warning system when manoeuvring the tractor whenever there are people in the immediate work area of the machine.**



### **Use of hydraulic hoists.**

#### **Knocks and entrapments**

The use of hoists facilitates the loading and unloading of canvases or nets loaded with olives. To avoid accidents caused by knocks due to hydraulic activation of hoists or finger entrapment when canvases or nets are being attached or removed from the hoist, the following instructions must be complied with:



Manoeuvres must be performed by one person only. This person must follow the following procedure:

**1** Approximation of the hoist to the canvas or net loaded with olives.

**2** The operator must step down from the tractor and attach the canvas or net to the hoist.



**3** Then, the operator must get back onto the tractor and activate the hoist in order to unload the contents of the canvas or net on the trailer.

**Access to work areas and thoroughfares.**

Falls and accidents with agricultural machinery and vehicles

▶ Operators must be transported to the farm or work area safely using adequate vehicles.

▶ Workers must not be transported on trailers or other means of transport that are not sufficiently conditioned or inadequate for this purpose.

▶ Workers must use the corresponding devices (handles, steps, foot-rests, etc.) to get on and off vehicles and must not jump to the ground from trailers and tractors.





► To avoid falls, slips and knocks, these elements must be kept in good condition and clean, and any mud or dirt must be removed.

### Running over

Work areas (olive beating, dragging of canvases, olive loading, etc.) are often close to thoroughfares (tracks, asphalt and dirt paths, lanes, ditches, roads...), thus increasing the risk of workers being run over or impacts. To prevent this risk, workers must:



► Use reflective and high-visibility clothing and signal work areas.

### Use of ladders in “mill olive and table olive” harvesting

#### Falls from different heights

Many farms have tall olive trees. It is difficult for workers to knock off olives on these trees using poles and so they normally climb the trees to knock off the olives on the top branches. This gives rise to risk situations and accidents such as falls and knocks from branches. To control this risk, workers must:

► **Use longer sticks to knock off the olives without having to climb trees and/or use ladders.**

On farms that produce “table olives”, workers must use ladders to “milk” the trees. **The following basic precautions** must be taken when using these ladders:

► **If wooden ladders are used, they must not be painted because paint may conceal knots, deterioration or damage such as broken rungs.**

► **Steps must never be round or tied with wires or rope or secured with small nails.**

► **The ladder must not be used if it is clearly in poor condition.**

► **Scissor-ladders must have sufficiently resistant chains to prevent them from opening completely and causing workers to fall off.**

► **The legs or bases of scissor-ladders must be secured firmly to the ground to prevent the ladder from opening accidentally; when using other ladders, before climbing up the ladder users must ensure it is secured to the ground and to the tree.**



▶ **Ladders must not be used by two people at the same time.**

▶ **During “milking”, ladders must be kept in vertical position. If the worker cannot reach the intended branch, he/she must climb down and move the ladder.**

▶ **Scissor-ladders must be moved by two people.**



**Pruning** work is performed after harvesting, mainly to rejuvenate or renew trees so that they can produce many olives or to form younger trees.

From a safety standpoint, pruning is a critical phase since it must be performed at least every two years, involves many workers and accidents happen every year as a consequence of the following risk situations:

#### Main Risks

- Cuts and knocks to hands, legs and face from rebounding machinery when workers start cutting work.
- Projected chain elements or parts due to breakage of the cutting chain.
- Projected particles or shavings that hit workers in the face or eyes during cutting.
- Knocks and pricks caused by tree branches.
- Injuries caused by noise and vibrations.
- Back injuries, e.g. lumbago, back pain, slipped disc, lumbosciatica, due to forced postures and incorrect handling of chainsaws.





### Use of chainsaws.

The following preventive measures must be taken when using chainsaws:

► During pruning, the individual protection equipment indicated in Table 1 must be used.

NO



YES



Cutting

► Only one person must work on a tree at a time.

NO



YES





► If you work with a loose or insufficiently tensioned cutting chain, there is a risk that this may break or come out of the chain guide and cause a serious accident. Therefore, during the working day, the chain must be checked as often as necessary to ensure it is sufficiently tensioned and

lubricated. Also, at the end of each working day, check the chain links and rivets for cracks or abnormal wear and tear and make sure the chain is rigid.



▶ **Cutting must be performed using the lower part of the blade. Never start cutting with the point of the blade because the saw will rebound. Also, to avoid rebounding, the chainsaw must always be turned on and held firmly with both hands.**

▶ **The saw must be moved at idling speed after the chain has stopped and the left-hand brake has been activated.**

▶ **If the saw pulls during cutting, use the chainsaw fasteners to prevent the saw from jerking forward abruptly.**

▶ **If, during cutting, the worker comes across a particularly hard area (e.g. knots in wood or other elements), do not force the chainsaw because it may rebound or the chain may break.**

▶ **On farms situated on sloping ground, start pruning on higher ground and on the most accessible part of the tree. This will reduce the need to adopt forced postures, avoid knocks from broken branches, etc.**



► **Visibility is a very important factor in safety. Workers must take short and frequent rests during the working day to clean sawdust from the chainsaw and from face (shields and visors) and eye (goggles) protection equipment.**

The following chainsaw mechanisms must be kept in perfect condition and maintained:

① **Brake chain. This prevents cuts if the chainsaw rebounds. When the rear switch on the handle is released, the chain stops.**

**2** Protectors at the rear of the chainsaw.

**3** Accelerator stop. This blocks the accelerator to prevent accidental acceleration.

**4** Chain catch. This collects the chain inside the carcass if the chain suddenly breaks.

**5** Left-hand control. This controls the operation of the chainsaw. It is activated by the left hand and ensures the worker does not lose control of the chainsaw.

**6** Idling stop. This stops the chain when the chainsaw decelerates.

**7** Chain catch. This blocks the chain if it slows down.

**8** Anti-vibration system on handles and grips. This reduces vibrations transmitted to the hand-arm system, thus reducing stress, making usage more comfortable and work easier.



Remember that the safety mechanisms incorporated in the chainsaw only complement safe working techniques.

► **The chain blade protector cover must be used when the chainsaw is not being used or when it is being transported. The chainsaw must be turned off before it is transported.**

NO



YES

### Overstraining and forced postures

NO



YES



► Stand firmly, with your legs apart and knees slightly flexed. Otherwise, vibrations will not be absorbed correctly and there will be a greater risk of knocks and cuts if the chainsaw rebounds.



► If the chainsaw is held too far away from the body during cutting, the chainsaw's centre of gravity will be too far away from the body, thus increasing the risk of overstraining in the dorsal-lumbar region.

NO



YES



► Due to the chainsaw's weight and vibrations, do not hold it above shoulder height. Use a ladder if necessary.

NO



YES

► Workers must have access to chainsaws of various sizes and weights, and these must be adapted to the size and diameter of the branches to be cut.

► Workers must take short but frequent breaks to recover from fatigue.





## Burns and fires

To avoid these risks when refuelling chainsaws, workers must follow the instructions provided in the section on refuelling operations for machinery and portable harvesting equipment such as motorized olive harvesters, chainsaws, blowers, shredders, etc.

▶ **Pruning work must not be performed by children, especially when this requires them to use chainsaws directly.**

## Other safety measures

▶ **Workers must not perform pruning work with chainsaws on their own. There must be at least two workers in each work area and these workers must have appropriate means of transport and vehicles, as well as a mobile telephone with the main local emergency numbers.**

### Use of manual pruning tools.

In addition to chainsaws, pruning work requires the use of manual cutting tools such as hacksaws, axes, scissors, shears, etc.

#### Cuts and projected objects

NO



YES



► Shear handles must be as long as possible since short handles exert pressure on the palm of the hand during cutting. They must also have springs to allow the shears to open automatically.



► Always use gloves and protective face and eye equipment.

NO



YES

► **These tools must be transported in their covers. They must not be carried in pockets or on belts because this increases the risk of cuts and pricks.**

NO



YES





### **Use of pneumatic pruners.**

The growing and progressive mechanisation of Andalusian olive farms is being accompanied by greater use of pneumatic pruning machines on farms. These speed up pruning work, particularly on farms with young trees.

### **Cuts and projected objects**

The use of this type of equipment entails a high risk of cuts to fingers on the hand not being used to activate the pruning blade when clearing and collecting branches to be cut.

To control this risk, workers are recommended to:

► **Use progressive cutting shears rather than pruners or shears that cut branches immediately. If accidentally activated, the response and/or reaction time of the operator is longer with the former and may prevent accidental cuts.**

► **The shears must be equipped with devices or mechanisms that prevent accidental activation.**

► **During transport, they must be kept in the appropriate covers.**

► **Adequate individual protection equipment must be worn during usage, such as metal-tipped gloves and protective eye goggles and/or face shields.**

**Other precautionary measures to be taken during pruning work.**

**Risks of falls from different heights**

▶ **Workers must never climb up trees. They must use ladders in perfect condition, of adequate size, resistant and without round rungs.**

▶ **Climb up and down the ladder facing the rungs and never with your back to the ladder.**





bad  
conditions



good  
conditions



bad  
position



good  
position

► Make sure the ladder is secure by firmly and securely supporting the legs of the ladder on the ground to prevent it from moving accidentally or slipping, and safely supported at an adequate angle against the branches of the tree.





## Hand-powered

shredders are used on olive farms to eliminate pruning remains (trunks, branches and leaves) through crushing and shredding before they are burned on the farm itself or added to soil in the form of organic matter. To control the risks associated with these machines, the following precautionary measures must be taken:

### Knocks and entrapment

► **The transmission area (power take-off axle) between the tractor and the chipper must be completely protected by a plastic tubular-shaped protector. If they have front axle transmissions (power take-off) or lateral transmissions (belts), they must be properly protected and not accessible.**





► **Unblocking and repair operations must only be performed when the machinery is completely stopped. Therefore, the tractor and shredder must be completely stopped before maintenance and greasing work is performed, and the shredder must be secured firmly to the ground by stable and safe stops.**

**Risk of projected particles and use of individual protection equipment**

► **Since the risk of projected particles and entrapments due to the snagging of clothing and gloves is high and these types of machines produce high levels of noise, the individual protection equipment indicated in **Table 1** must be used.**

► **To control the risk of projected stones, branches, etc. nobody must be present in the immediate area around the machine during feeding operations.**

▶ **Tractors powering these types of machines must have glass panels, safety panels or similar elements fitted to the rear in order to prevent impacts from elements (stones, chips, branches etc.) projected during crushing operations performed by the shredder.**

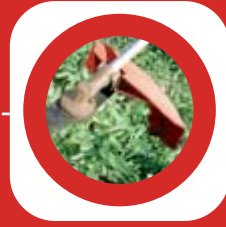


▶ **The shredder hopper is protected by rubber screens or panels to prevent chips from being projected in the direction of the operator feeding them into the hopper. These screens or panels often deteriorate and must be replaced.**





## USE OF PORTABLE SHREDDERS



# Portable

shredders are used on many farms, particularly small farms engaging in organic farming and areas where it is difficult to use self-propelled machinery, such as a system for controlling plant cover.

**Cuts and projected particles.**

► **These types of shredders are very noisy and also project stones at high speeds. Therefore, the presence of persons in the area around the work site is prohibited.**





► Workers operating shredders must use the individual protection equipment specified in **Table 1**.

NO



YES

► To reduce the risk of projected stones, the protector must always be fitted to the cutting area (cutting heads).



► Safety recommendations for operating shredders.





### Overstraining, physical stress and muscular fatigue

The weight of the most powerful equipment can exert substantial stress in long duration work and for workers who are not heavily built, especially women. Therefore:

NO



YES

► It is essential that workers wear (padded) “comfort” harnesses of the appropriate size, particularly when using the heaviest equipment. This harness distributes the weight evenly between the shoulders, back and hips, and is equipped with soft pads that absorb vibrations and allow the worker to work more comfortably during long working days.



► **The height and opening or amplitude of the shredder handle must be adjusted to make the machine more comfortable to use.**

► **Since this is hard work causes great muscular fatigue, workers are advised to alternate tasks and take short but repeated breaks during the working day.**

### **Burns and fires**

To avoid these risks when refuelling shredders, workers must follow the instructions provided in the section on refuelling operations for machinery and portable harvesting equipment such as motorized olive harvesters, chainsaws, blowers, shredders, etc.





**In** order to maintain adequate phytosanitary conditions on olive farms, phytosanitary products must be applied in certain periods of the year.

The use of such products entails high risks for the health of persons who come into contact with these products. Therefore, workers handling these products must take precautions to eliminate and/or reduce exposure to toxic products:

### Legal qualifications for handling phytosanitary products

All workers handling and/or participating in the application of phytosanitary products must have the necessary qualifications established by regulations currently in force in Andalusia, specifically:

#### ▶ Phytosanitary product applicator licence.



Thus, persons without the necessary training and qualifications granted by these two licences are not authorised to handle and apply phytosanitary products.



### Use of individual protection equipment (IPE).

When handling phytosanitary products, toxic vapours or dust may be released since they contain volatile organic solvents or other toxic substances (e.g. chlorine).

During application, workers must use the individual protection equipment indicated in table 2:

PART OF THE BODY TO PROTECT	PROTECTIVE CLOTHING OR EQUIPMENT
Head	▶ Hats, caps or hoods
Face and eyes	▶ Protective goggles and face shields
Arms, torso and legs	▶ Boiler suit-type protective suits and aprons
Hands	▶ Gloves
Feet	▶ High-length boots
Mouth and nose	▶ Protective breathing masks

Table 2

Protective gloves

► Workers must use gloves manufactured with NITRILE or NEOPRENE rubber. These provide greater protection against phytosanitary products.

NO



YES





### Protective clothing

Single-piece diver-type suits are preferable clothing such as trousers or overalls that only cover part of the body.



NO

YES

► The type of clothing (in terms of material) will be determined by the weather conditions and the technical conditions for applying the treatment.

► At medium and high temperatures, the clothing used must allow a certain degree of transpiration (it must improve comfort and make work easier), and be slightly impermeable to repel liquids. Cotton clothing must be washed after every use.

► To make protective clothing more comfortable, extreme environmental conditions must be avoided (high or low temperatures and strong winds). Work should be performed at cool temperatures (according to the season). In our latitudes, work should commence at the early hours of the morning until 09:00-10:00, and then restart in the afternoon, after the hottest hours of the day.

► At low temperatures (when treatments are to be applied in the early hours of the morning), waterproof clothing should be used to prevent the applied product from coming into contact with the skin.

► Given their higher level of overall protection, single-piece overalls or suits are recommended rather than clothing that only provides partial protection such as jackets, trousers or leggings, etc.

► This clothing must be form-fitting in areas in contact with boots, collars and cuffs.



## Boots

NO



YES

► **Sealed, rubber, calf-length boots must be used. Their inner lining must not have any textile covering. They must also fit tight around the leg and feet and must be placed under trousers to prevent phytosanitary product liquid from coming into contact with skin.**



**Goggles and/or  
face shields**

► These are designed to protect the face and eyes from splashed pesticide and vapour or gas emissions.

NO



YES

► Goggles must fit tight around the face to prevent the entry of contaminants from the sides, above or below, and must have holes to prevent the goggles from steaming up and to allow adequate ventilation.





### Breathing masks

These are designed to prevent workers from inhaling air contaminated by phytosanitary products.

NO



YES

► These marks have two main parts; the filter, which cleans inhaled air; and the mask itself, which is made from different materials and in different forms.

► The mask must fit tight around the face and must be comfortable; for this purpose, it must have adjustable straps and a neck-type harness, be as light as possible and provide a broad field of vision.



► Filters differ according to the group of chemical contaminants with which they are to be used. All filters can be identified and differentiated according to the numerical codes and colour strips printed on the filter cartridge. For most phytosanitary products, mixed filters should be used, identified by the abbreviation A2P2 and white and brown strips.





fumar. En caso de contacto con los ojos, l  
agua y acúdase a un médico. En caso de  
Información Toxicológica, Tf: 91 562 04 20



RA



► In any case, and given the wide range of products and application conditions, workers are recommended to follow the instructions provided in the safety data file of the product to be applied.

#### Packing and/or labelling

► Consult the label on the container or bottle and technical safety instructions for details of doses, risks, preventive measures, personal protection, compatibility with other products, etc. Compliance with product specifications guarantees efficient and safe use of the product.

► During storage, transport and usage, phytosanitary products must be kept in their original, hermetically-sealed and appropriately-labelled containers or bottles.

NO



YES



► During handling, they must be kept in their original containers or bottle; products that are not in their original containers or bottles, have no labels, present defects or are in poor condition must not be used.





► It is prohibited for phytosanitary products to be transported together with feed, food and animals.

#### Mixture and preparation of the treatment mixture

► Pesticides must never be mixed on unstable locations or platforms that may cause spillage and/or splashing.

#### Transport of phytosanitary products

► When transporting phytosanitary products from the warehouse or point of purchase to the farm, both the driver and passengers must be completely separated from the cargo.

► Stirring paddles or collectors must be used with long handles to avoid contact with the product, for example when putting hands in sacks or bags containing dust-based pesticides.

► Workers must not use their hands or arms to prepare and/or stir the treatment mixture.

NO



YES



► Recipients (buckets or barrels) and regulated meters must be used, as well as funnels, filters or strainers to ensure correct doses are applied and to avoid spillage or splashing.



► **Treatment formulations that pose fewer risks to human health should be used, e.g. granules dispersible in water, soluble granules, effervescent tablets, capsules, microcapsules, etc.**

#### **Application of phytosanitary products**

The application equipment to be used must be in perfect condition. Products must never be applied using deteriorated or incorrectly adjusted equipment. In this sense, workers must:

► **Never suck up liquid pesticides using pipes or hoses to transfer this liquid from one recipient to another due to the high risk of accidental ingestion.**

► **Ensure application hoses and knapsacks are in optimum condition to avoid leaks that may impregnate clothing and even workers' skin.**



► Carefully check the application equipment before and after treatment to make sure it is impermeable, working properly, watertight at joints, stops, nozzles, etc. to avoid potential product leaks. Deteriorated elements or pieces must be replaced.

NO



YES





► When using knapsack sprayers, workers must wear something impermeable protection between their back and the knapsack to prevent spilled treatment mixture from impregnating their work overalls.

NO



YES

► If the application equipment nozzle blocks, do not blow into the nozzle to unblock it. Replace it with a new nozzle and then clean it with pressurized water or compressed air.

NO



YES



► Workers must be accompanied when applying phytosanitary products. They must never apply treatments alone.



▶ When applying treatment, aim the sprayer in the direction of the wind. If the product is sprayed in the opposite direction, you will come into contact with the application cloud and then inhale fumes and vapours and become impregnated in the product.

▶ Do not eat, drink or smoke when handling phytosanitary products.



▶ Always wash hands after completing this work.

▶ **After applying the treatment, shower and change clothing on the farm if possible. Working overalls must be washed separately from other clothing.**

▶ **Once treatment has been completed, work equipment must be cleaned; workers must use individual protection equipment to perform this task.**

▶ **Personal protection equipment must be cleaned thoroughly.**



## THE USE OF AGRICULTURAL TRACTORS AND THEIR RISKS



**In** recent decades, tractors have become the machines of choice in olive harvesting and are used in most operations.

Tractors are also responsible for most occupational accidents during harvesting, especially the most serious accidents.

The risks and dangers vary enormously, for example, different types of tractor overturns or “roll-overs”, falls, crashes, knocks and running over, entrapments in power take-off gears, etc..

The following preventive measures must generally be taken when working with tractors:

### Entrapment and crushing

► **When connecting and disconnecting implements, make sure nobody is standing behind the tractor and slowly move this closer to the implement or trailer.**





► Take extreme care with the rotating movements of power take-off equipment and transmission axles. These systems must be protected at all times. Deteriorated axles must be replaced immediately.

NO

YES





▶ **When handling power take-off equipment, do not wear loose clothing and/or long hair, bracelets, rings, necklaces, etc.**

#### **Falls and knocks**

▶ **The tractor must have adequate steps, running boards, handholds and grip mechanisms.**

▶ **The steps must be in good condition, i.e. clean of mud and dry.**

▶ **Do not get on or off the tractor when it is moving.**





▶ Do not jump off the tractor. Do not carry persons in areas that are not adapted for this purpose. Most tractors are designed for one passenger and the driver.

NO



YES

▶ Activate the acoustic warning system to indicate tractor manoeuvres or movements.

▶ **When starting the tractor, make sure nobody is in its area of influence, including blind spots.**

**NO**



**YES**





### Other preventive measures

► A suitable extinguisher for the materials being transported must be carried onboard the tractor and must be in perfect condition.

NO



YES

► **Protect tractor exhaust pipes with heat dissipating plates to avoid burns from accidental contact with these exhaust pipes.**



