



SUPPORT TOOLS FOR RISK ASSESSMENT IN SEASONAL ACTIVITIES IN AGRICULTURE

DICEMBRE 2021



A cura del Gruppo di lavoro di nomina ministeriale.

Ministero del Lavoro e delle Politiche Sociali

Ministero della Salute

Ministero delle politiche agricole, alimentari e forestali

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Gruppo di Lavoro del Piano Nazionale di Prevenzione Agricoltura

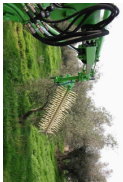
OLIVE HARVESTING

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity		Work equipment
Manual/assisted harvesting - Nets spreading (this step may not be performed) - Containers handling - Methods for manual harvesting of olives: HAND PICKING: olives are removed from the branch by hand and either are put into baskets or fall to the ground on the nets; COMBING: performed using specific tools called "combs", which are similar to rakes and are used to strip olives off the branches and make them fall on the nets; BEATING: branches are beaten or shaken by means of long poles to make olives fall; COLLECTION: olives on the ground are collected by hand. - Methods for mechanically-assisted harvesting of olives: ABBACCHIATURA: use of specific poles with swinging or rotating combs on the top, the poles are either hand-held by the operator or connected to the tractor or other self-propelled machine. The olives are removed by the direct effect of such combs on the branches; SHAKING: use of portable, self-propelled or tractor-connected machinery that cause the olives to fall due to the swinging movement of branches produced by vibrating parts. The machine may be equipped with an "inverted umbrella"; RAKING: use of machinery that collect olives from the ground using brushes.		- Swinging power combs - Containers (boxes, buckets, baskets, etc.) - Combs - Trailer - Ladders - Branch shakers - Brush rakes - Nets - Tractor
Delivery of the harvest Loading containers onto a trailer and transporting them by means of a tractor.		 Swinging power comb connected to the tractor
 Nets spreading  Assisted harvesting with portable harvesting machine		

Dangers	Risks	Prevention and protection measures (1)		
Fields, woods and other land in the farm	Slip or trip hazard	O/P: Making sure the appropriate shoes are used: closed toe and anti-slippery sole.		
Fields, woods and other land in the farm	Contact with plants	PPE: Goggle wearing while hand-picking and manual combing.		
Adverse weather conditions.	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weathter conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.		
Physical agents	Exposure to noise while using the harvesting machines	T: Choosing low-noise-level machinery. O/P: Displacing the source of noise (compressor, power generator, etc.) far from the working area, if possible. F/I: Training and information according to the support tool called " Noise risks training and information ".		
		Type of machinery		
		Battery-powered portable swinging combs.		Not applicable
		Petro-l-engine-powered portable swinging combs		PPE: Use of hearing protections with guarantee of use training. SS: Medical monitoring.
		Portable swinging combs with power generator.		
		Air-operated portable swinging combs connected to a compressor that is powered by a petrol engine		
		Air-operated portable swinging combs connected to a compressor that is powered by a tractor		

Dangers	Risks	Prevention and protection measures (1)		
Physical agents	Exposure to noise while using the harvesting machines	Further prevention and protection measures (1)	Type of machinery	
				Swinging power comb connected to the tractor or to other self-propelled machine
				Petrol-engine-powered portable branch shakers
				Self-propelled or tractor-connected branch shakers
Physical agents	Exposure to noise while using the harvesting machines	Further prevention and protection measures (1)	Type of machinery	Brush rakes
				T 1: Using tractors or self-propelled machines whose seat can effectively damp the vibrations. O/P: Setting, where possible, the seat adjustment device according to height and weight of the operator. T 2: Choosing low-vibration-level machinery. T 3: Minimizing the lever arm while using portable machines. F/I: Training and information according to the support tool called "Vibration risks training and information".
				Type of machinery Battery-powered portable swinging combs.
				PPE: Anti-vibration gloves (considering the information available in INAIL or Regions' databases, or those provided by machines' manufacturers). SS: Medical monitoring.
Physical agents	Exposure to vibrations for the arm/hand or for the whole body while using the harvesters			Petrol-engine-powered portable swinging combs

Dangers	Risks	Prevention and protection measures (1)		
		Type of machinery		Further prevention and protection measures (1)
Physical agents	Exposure to vibrations for the arm/hand or for the whole body while using the harvesters	Portable swinging combs with power generator.		PPE: Anti-vibration gloves (considering the information available in INAIL or Regions' databases, or those provided by machines' manufacturers). SS: Medical monitoring.
		Air-operated portable swinging combs connected to a compressor that is powered by a petrol engine		
		Air-operated portable swing combs connected to a compressor that is powered by a tractor		
		Petrol-engine-powered portable branch shakers		
		Swinging power comb connected to the tractor or to other self-propelled machine		
		Self-propelled or tractor-connected branch shakers		
		Brush rakes		SS: Medical monitoring.

Dangers	Risks	Prevention and protection measures (1)
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool "Tractor". For safety related to other machines marketed or commissioned after September 21st, 1996, see their CE declaration of conformity, CE marking and user manual. For machines marketed before September 21st, 1996, the employer shall ensure compliance with safety requirements under Annex V to D.Lgs. 81/2008 and subsequent amendments and additions, and provide instructions for use.
Use of ladders	Fall from heights	For ladder safety issues, see the support tool "Portable ladders".
Works near power lines	Electrocution	O/P: Respect of safety distance between machinery used and power lines conductors (3 m for voltage up to 1 kV, 3.5 m for voltage over 1 kV and up to 30 kV, 5 m for voltage over 30 kV and up to 132 kV and 7 m for voltage over 132 kV).
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures, Repetitive motions, Lifting and movement of loads	T 1: Using light-weight combs with ergonomic grip. T 2: Using easy-grab containers (boxes, buckets, baskets, etc.) O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Reducing manual transportation distance for boxes. O/P 4: Suitable working hours with sufficient breaks and/or O/P 5: Taking turns with other operators among the different actions (picking and other operations) F/I/A: Training, information and induction as per support tool "Information, training and induction on risks from manual handling of loads". SS: Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus, hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), F/I/A (training/information/induction), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVEST OF WINE GRAPES

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
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- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

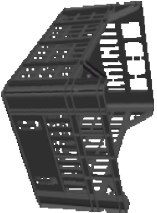
Steps of the work process/activity	Work equipment	
• Grapes harvesting. The bunches are cut using scissors and put into containers (boxes, buckets, baskets) that are moved by a few meters along the row to the next grapevine to be harvested. • Delivery of the harvest. Once full, the containers are loaded on a trailer o directly emptied into a hopper- or box-trailer and transported with tractors.	 	• Boxes, buckets, baskets • Box-trailer or hopper-trailer • Scissors • Trailer • Tractor  
		

Dangers	Risks	Prevention and protection measures (1)
Fields, woods and other land in the farm	Slip or trip hazard	O/P: Making sure the appropriate shoes are used: closed toe and anti-slippery sole.
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.
Work equipment	Wounds caused by scissors	T: Using blunt-tip scissors, which shall be sheathed during box/bucket/basket handling and when the operator moves to another place. O/P: Operational instructions to avoid interference during cut. PPE: Cut resistant gloves
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool “ Tractor ”.
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T 1: Using ergonomic scissors, with a good handle shaping to reduce compression on the fingers. T 2: Using easy-grab containers (boxes, buckets, baskets, etc.). O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Reducing manual transportation distance for boxes. O/P 4: Suitable working hours with sufficient breaks and/or O/P 5: Taking turns with other operators among the different actions (picking and other operations) F/I: Training and information as per support tool “ Information and training on risks from manual handling of loads ”. SS: Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

HARVEST OF TABLE GRAPES

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
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Steps of the work process/activity	Work equipment	
• Grapes harvesting. The bunches are cut using scissors and put into boxes. The boxes to be filled are usually placed on tables that are periodically lifted and moved, by a few meters, towards a new vine in the row. Wheelbarrows may be used instead of tables. • Delivery of the harvest. Once full, the boxes are placed next to the rows and are then loaded on a trailer and transported by the tractor.	 Harvest of table grapes  Putting grapes in the boxes  Handling the boxes	• Tables • Wheelbarrows • Boxes • Scissors • Trailer • Tractor  Table  Scissors  Box

Dangers	Risks	Prevention and protection measures (1)
Fields, woods and other land in the farm	Slip or trip hazard	O/P : Making sure the appropriate shoes are used: closed toe and anti-slippery sole.
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1 : Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2 : Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.
Work equipment	Wounds caused by scissors	T : Using blunt-tip scissors, which shall be sheathed during box handling and when moving to another place. O/P : Operational instructions to avoid interference during cut. PPE : Cut resistant gloves.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1 : Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2 : Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T 1 : Using ergonomic scissors, with a good handle shaping to reduce compression on the fingers. T 2 : Using easy-grab baskets and or boxes O/P 1 : Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2 : Using a loading surface at a height lower than the operators' shoulders. O/P 3 : Reducing manual transportation distance for boxes. O/P 4 : Suitable working hours with sufficient breaks and/or O/P 5 : Taking turns with other operators among the different actions (picking and other operations) F/I1 : Training and information as per support tool " Information and training on risks from manual handling of loads ". SS : Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P : Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1 : Verifying anti-tetanus vaccine coverage. O/P 2 : Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1 : Presence of a first aid box near the area where the harvest take place. O/P 2 : Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVEST OF ORANGES, CLEMENTINES, TANGERINES AND LEMONS

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity		Work equipment	
• Manual harvesting The harvest is performed either standing on the ground or climbing portable ladders, detaching the peduncle by hand or using scissors, or collecting the fruits fallen on nets on the ground. • Delivery of the harvest The harvest is placed into small containers (handbaskets, buckets, etc.) and later into boxes that are loaded on a trailer and transported by the tractor.	 Fruit picking standing on the ground Collecting fruits from the ground  Handling the boxes	• Boxes • Small containers (e.g. handbaskets, buckets, etc.) • Scissors • Trailer • Portable ladders • Tractor   Box  Portable ladder  Bucket	
Dangers	Risks	Prevention and protection measures (1)	
Fields, woods and other land in the farm	Slip or trip hazard	O/P: Making sure the appropriate shoes are used: closed toe and anti-slippery sole.	
Fields, woods and other land in the farm	Contact with plants	PPE: Protective goggles in case of picking among the branches.	

Dangers	Risks	Prevention and protection measures (1)	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.	
Work equipment	Wounds caused by scissors	T: Using blunt-tip scissors, which shall be sheathed during box/bucket/basket handling and when moving to another place. O/P: Operational instructions to avoid interference during cut. PPE: Cut resistant gloves.	
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".	
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.	
Use of ladders	Fall from heights	For ladder safety issues, see the support tool " Portable ladders ".	
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T 1: Using ergonomic scissors, with a good handle shaping to reduce compression on the fingers. T 2: Using easy-grab containers and/or boxes O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Lifting the load not above the operators' shoulders. O/P 3: Reducing manual transportation distance for boxes. O/P 4: Suitable working hours with sufficient breaks and/or O/P 5: Taking turns with other operators among the different actions (picking and other operations). F/I: Training and information as per support tool "Information and training on risks from manual handling of loads". SS: Medical monitoring.	
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.	
Biological agents	Exposure to tetanus Hymenoptera stings	T: Verifying anti-tetanus vaccine coverage. O/P: Implementation of the relevant first aid measures.	
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.	

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF FENNELS

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity		Work equipment	
• Harvesting • Uprooting the plant by hand and cutting the roots off, or directly cutting the fennel off the ground using a square-tip knife, leaving the roots in the ground. • Placing the produce into containers, which may be in a wheelbarrow, and manually transporting them along the row till they are full. • Delivery of the harvest. • The produce is directly placed into bins (when the produce is raw and needs processing in the warehouse), or as an alternative • Hulling and laying the produce. External leaves and the top part of the fennel are removed in the field. The produce is placed into boxes (one or two layers). The boxes are then loaded on a trailer and transported by a tractor, the same applies to for the bins.		• Bin • Wheelbarrow • Boxes, buckets • Knife • Trailer • Tractor	
 Produce to be picked		 Bin	
 Produce to be hulled		 Box	
 Hulled produce		 Knife	
Dangers	Risks	Prevention and protection measures (1)	
Fields, woods and other land in the farm	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe and anti-slippery sole. O/P 2: Pathways free of obstacles	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.	

Prevention and protection measures (1)		
Dangers	Risks	
Work equipment	Wounds caused by knives	O/P: Sheathing the knives during box/basket handling and when moving to another place. PPE: Cut resistant gloves
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support sheet "Tractor".
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T 1: Using a wheelbarrow to avoid lifting and transporting the bucket/box during the harvesting. T 2: Using easy-grab baskets and/or boxes. O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Reducing manual transportation distance for boxes. O/P 4: Suitable working hours with sufficient breaks and/or O/P 5: Taking turns with other operators among the different actions (picking and other operations) F/I: Training and information as per support tool "Information and training on risks from manual handling of loads". SS: Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

STRAWBERRY HARVESTING IN TUNNEL

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
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Steps of the work process/ activity		Work equipment
• Manual harvesting of strawberries using box-holders where up to two boxes can be placed, one on top of the other. • Transport out of the tunnel performed by the operator when the boxes are full. Delivery of the harvest: Once outside the tunnel, the boxes are loaded on a trailer and transported by a tractor.		• Boxes • Plastic trays • Box holders • Tractor • Trailer  Harvesting the strawberries  Handling the boxes  Boxes  Plastic tray

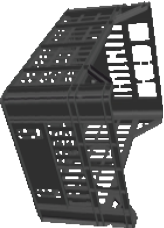
Dangers	Risks	Prevention and protection measures (1)	
Work performed inside the tunnel	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe or with ankle support and anti-slippery sole. O/P 2: Pathways free of obstacles	
Adverse weather conditions	Microclimate inside the tunnel/greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P 1: In summer, harvesting during the coolest hours of the day. O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P 3: Making sure appropriate breathable garments are worn.	

Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments).
Manual handling of loads	Wrong postures Repetitive motions Lifting and movement of loads	T: Using box holders to avoid lifting and transporting the box during the harvesting. O/P 1: Using a loading surface at a height lower than the operators' shoulders. O/P 2: Taking turns with other operators among the different actions (picking and other operations) and/or O/P 3: Suitable working hours with sufficient breaks. F/I: Specific training and information as per support tool "Information and training on risks from manual handling of loads". SS: Medical monitoring.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

HARVESTING OF HEAD LETTUCE Field or tunnel/greenhouse cultivation

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Steps of the work process/activity		Work equipment	
• Harvesting and hulling head lettuce The produce is picked by hand in bent position using a knife, it is hulled on the field. • Delivery of the harvest. The heads are placed into boxes that are transported by wheelbarrow, or other means, to the loading area, where the boxes are placed on pallets. The pallets are then loaded on trailers and transported by tractor.		 Harvesting of the lettuce and preparation of the boxes[X1]  Preparation of the pallet [X2]	
		• Wheelbarrow • Boxes • Knife • Pallet • Trailer • Tractor  Box  Knife	

Dangers	Risks	Prevention and protection measures (1)	
Fields, woods and other land in the farm	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe or at least with ankle support and anti-slippery sole. O/P 2: Pathways free of obstacles	

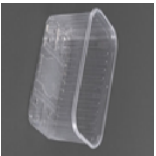
Dangers	Risks	Prevention and protection measures (1)
Adverse weather conditions	Microclimate inside the tunnel/greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P 1: In summer, harvesting during the coolest hours of the day. O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P 3: Making sure appropriate breathable garments are worn.
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.
Work equipment	Wounds caused by knives	T: Using blunt-tip knives which shall be sheathed during box/basket handling and when moving to another place. PPE: Cut resistant gloves. [X3]
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 3: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures Repetitive motions Lifting and movement of loads	T: Using a wheelbarrow to avoid lifting the bucket/box during the harvesting and avoiding manual transport at delivery. O/P 1: Using a loading surface at a height lower than the operators' shoulders. O/P 2: Suitable working hours with sufficient breaks and/or O/P 3: Taking turns with other operators among the different actions (picking and other operations) F/I: Training and information according to the support tool called "Training and information on the risks SS: Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

SMALL FRUITS HARVESTING

Field or tunnel/ greenhouse cultivation

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/ activity		Work equipment
• Harvesting: The fruits are grown in fields or tunnels/greenhouses, they are picked and placed into small trays and in their turn into boxes, which are moved to the next plant until complete filling. The boxes can be transported on trolleys. • Delivery of the harvest. Once full, the boxes are loaded on a trailer and transported by tractor.	 	• Multi-storey harvesting trolleys • Boxes and trays • Trailer • Tractor
	Picking fruits  Placing the fruits into the trays Placing boxes on the multi-storey trolley  Placing the trays into the boxes	 Box  Tray

Dangers	Risks	Prevention and protection measures (1)
Fields, woods and other land in the farm	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe and anti-slippery sole. O/P 2: Pathways free of obstacles
Fields, woods and other land in the farm	Contact with plants and support frames	O/P: Making sure appropriate work garments are worn, at least for spiny plants. PPE: Protective goggles when picking from spiny plants at eye level.
Adverse weather conditions	Microclimate inside the tunnel/greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P 1: In summer, harvesting during the coolest hours of the day. O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P 3: Making sure appropriate breathable garments are worn.
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	O/P 1: Loading the trailer below the operators' shoulders' height. O/P 2: Taking turns with other operators among the different actions (picking and other operations) and/or O/P 3: Suitable working hours with sufficient breaks. SS: Medical monitoring. F/I: Training and information as per support tool " Information and training on risks from manual handling of loads ".
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings and ticks bites	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures. O/P 3: Use of coating garments when there is a risk of ticks bites.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF BASIL IN TUNNEL/GREENHOUSE

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity	
• Manual harvesting. Wood boards are positioned between two aisles (also made of wood boards), slightly raised to prevent the plant from being crushed, and used as support frame to harvest the basil in the center the row. • Delivery of the harvest. The bunches are placed into boxes and then taken out of the greenhouse, loaded on a trailer and transported by tractor.	
 Harvesting inside a greenhouse	
Work equipment	
• Boxes • Trailer • Tractor  Box	

Dangers	Risks	Prevention and protection measures (1)	
Work in greenhouse	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe or at least with ankle support and anti-slippery sole. O/P 2: Pathways free of obstacles	
Adverse weather conditions	Microclimate inside the tunnel/greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P 1: In summer, harvesting during the coolest hours of the day. O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P 3: Making sure appropriate breathable garments are worn.	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments).	
Wood boards	Risk of falling	T: the boardwalks are at least 60 cm wide and the boards composing them are at least 4 cm thick and at least 20 cm wide.	
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".	

Dangers	Risks	Prevention and protection measures (1)
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T: Using box holders to avoid lifting and transporting the box during the harvesting. O/P 1: Using a loading surface at a height lower than the operators' shoulders. O/P 2: Taking turns with other operators among the different actions (picking and other operations) and/or O/P 3: Suitable working hours with sufficient breaks. SS: Medical monitoring. F/I: Training and information as per support tool " Information and training on risks from manual handling of loads ".
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF VEGETABLE IN TUNNEL/GREENHOUSE (Cucumbers, Zucchini, Eggplants, etc.)

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity			Work equipment
• Harvesting, carried out with bucket or box. The vegetables are picked - either detached or cut off using scissors or knives - and placed in containers (boxes, buckets). The boxes are usually put on tables outside the tunnel. • Delivery of the harvest. The containers are then loaded on a pallet or transferred into bins and then loaded on a trailer and transported by tractor.	 Vegetable harvesting  Transporting the boxes by wheelbarrow	 Box preparation  Tunnel	• Tables • Bins • Wheelbarrow • Boxes, buckets • Knives • Scissors • Trailer • Tractor  Bin  Box  Scissors

Dangers	Risks	Prevention and protection measures (1)	
Work performed inside a tunnel/greenhouse	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe or at least with ankle support and anti-slippery sole. O/P 2: Pathways free of obstacles	

Dangers	Risks	Prevention and protection measures (1)
Work performed inside a tunnel/greenhouse	Contact with plants	O/P: Protective gloves in case of stinging plants, even though the harvesting is performed by detachment and without any tool.
Adverse weather conditions	Microclimate inside the tunnel/greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P 1: In summer, harvesting during the coolest hours of the day. O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P 3: Making sure appropriate breathable garments are worn.
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments).
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T1: Using a wheelbarrow to avoid lifting and transporting the bucket/box during the harvesting. T2: Using easy-grab baskets and/or boxes. O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Taking turns with other operators among the different actions (picking and other operations) and/or O/P 4: Suitable working hours with sufficient breaks. SS: Medical monitoring. F/I: Training and information as per support tool "Information and training on risks from manual handling of loads".
Work equipment	Wounds caused by scissors or knives	T: Using blunt-tip knives or scissors which shall be sheathed during box/basket handling and when moving to another place. PPE: Cut resistant gloves.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF FRUITS CULTIVATED IN ROWS apple, pear, peach, apricot, plum, cherry, kiwi, persimmon, etc.

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/ activity		
• Manual harvesting. The fruits are picked, either standing on the ground or using ladders, by detachment or, for some crops, by cutting with scissors, and then placed into containers (boxes, buckets). The containers are then loaded on pallets or transferred into bins, according to the type of produce. • Manual harvesting using carried/towed bins. The fruits, once detached from the plant, are either put directly into the bins, which are placed one next to the other along the row and are towed by a tractor, or into other devices that convey the produce into the bins. • Manual picking from a mobile platform. The operators get on the harvesting platform, pick the fruit standing on the platform at a height of around 1.5-2.5 m, and put the produce into variable-size boxes, whose bottom may be opened for transferring into the bins or larger boxes. • Delivery of the harvest Loading containers onto a trailer and transporting them by means of a tractor.	 Cutting the stem   Picking from a ladder Picking from a mobile platform	
	• Bins • Mobile harvesting platform • Boxes • Scissors • Conveyor belt • Trailer • Portable ladders • Buckets/baskets • Tractor   Bin Platform   Scissors Ladder  Bucket	

Dangers	Risks	Prevention and protection measures (1)	
Fields, woods and other land in the farm	Slip or trip hazard	O/P: Making sure the appropriate shoes are used: closed toe and anti-slippery sole.	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.	
Work equipment	Wounds caused by scissors	T: Using preferably blunt-tip scissors, which shall be sheathed during box/basket handling and when moving to another place. O/P: Operational instructions to avoid interference during cut. PPE: Cut resistant gloves	
Work equipment	Mechanical or electric risks	For harvesting platform safety issues, see the support tool "Mobile harvesting platform" . For tractor safety issues, see the support tool "Tractor" .	
Use of ladders	Fall from heights	For ladder safety issues, see the support tool "Portable ladders" .	
Works near power lines	Electrocution	O/P: Respect of safety distance between machinery used and power lines conductors (3 m for voltage up to 1 kV, 3.5 m for voltage over 1 kV and up to 30 kV, 5 m for voltage over 30 kV and up to 132 kV and 7 m for voltage over 132 kV).	
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.	
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads.	T: Using ergonomic scissors, with a good handle shaping to reduce compression on the fingers. O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Reducing manual transportation distance for boxes. O/P 4: Suitable working hours with sufficient breaks and/or O/P 5: Taking turns with other operators among the different actions (picking and other operations) F/I: Training and information as per support tool "Information and training on risks from manual handling of loads" . SS: Medical monitoring.	
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.	
Biological agents	Exposure to tetanus, hymenoptera stings	T: Verifying anti-tetanus vaccine coverage. O/P: Implementation of the relevant first aid measures.	
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.	

(1) : O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF TOMATOES IN GREENHOUSE

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity		Work equipment	
• Harvesting The harvesting is performed without any precise seasonality. • The bunches of cherry tomatoes are either cut by scissors or detached manually and the produce is put into boxes or buckets. • The height of the plants changes according to tomato varieties and growing techniques. Tomatoes grow and ripen along the whole trunk, therefore the picking takes place at different heights. • Climbing plants that reach a notable length can be lifted and lowered using ropes, in order to keep the picking area at a height included between the operator's knees and shoulders. • The boxes are usually put on the ground or on tables outside the tunnel. • Delivery of the harvest Loading containers onto a trailer and transporting them by means of a tractor.		   Harvesting steps  • Trolleys • Wheelbarrow • Boxes, buckets • Scissors • Trailer • Tractor  Box  Scissors	
Dangers	Risks	Prevention and protection measures (1)	
Work performed inside a greenhouse	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe or at least with ankle support and anti-slippery sole. O/P 2: Pathways free of obstacles	

Dangers	Risks	Prevention and protection measures (1)	
Work performed inside a greenhouse	Contact with plants	O/P: Protective gloves in case of stinging plants, even though the harvesting is performed by detachment and without any tool.	
Adverse weather conditions	Microclimate inside the greenhouse	T: Tunnel/greenhouse ventilation with variable openings according to the size (openings must at least be 10% of the ground surface of the tunnel/greenhouse). O/P1: In summer, harvesting during the coolest hours of the day. O/P2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration. O/P3: Making sure appropriate breathable garments are worn.	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation outside of the tunnel/greenhouse	O/P: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments).	
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T1: Using a trolley/wheelbarrow to avoid lifting and transporting the bucket/box during the harvesting. T2: Using easy-grab baskets and/or boxes. T3: Implementing growing techniques that maintain the height of tomatoes between knees and shoulders. O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Suitable working hours with sufficient breaks and/or O/P 4: Taking turns with other operators among the different actions (picking and other operations). SS: Medical monitoring. F/I: Training and information as per support tool " Information and training on risks from manual handling of loads ".	
Work equipment	Wounds caused by scissors	T: Using blunt-tip scissors which shall be sheathed during box/basket handling and when moving to another place. O/P: Procedures to avoid interference during cut. PPE: Cut resistant gloves.	
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".	
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading.	
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.	
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.	
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.	

(1) : O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF VEGETABLE IN OPEN FIELD

Tomatoes, eggplants, peppers, zucchini, etc.

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/activity		Work equipment
• Harvesting vegetables. The vegetables are picked by detachment, sometimes using scissors or knives, are hulled if necessary and placed into buckets or boxes. Wheelbarrows may be used to move the boxes along the rows. • Delivery of the harvest. The boxes of produce are loaded on a trailer or emptied in bins for later transport by tractor.		• Bins • Wheelbarrows • Boxes • Knives • Scissors • Buckets • Trailer • Tractor   
 Harvesting with boxes  Harvesting with buckets  Use of wheelbarrows to transport the boxes 		  

Dangers	Risks	Prevention and protection measures (1)
Fields, woods and other land in the farm	Slip or trip hazard	O/P 1: Making sure the appropriate shoes are used: closed toe and anti-slippery sole. O/P 2: Pathways free of obstacles
Fields, woods and other land in the farm	Contact with plants	O/P: Protective gloves in case of stinging plants, even though the harvesting is performed by detachment and without any tool.
Adverse weather conditions	Exposure to heat, solar radiation, cold, Rain, wind	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: In summer, harvesting during the coolest hours of the day. O/P 3: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.

Dangers	Risks	Prevention and protection measures (1)
Work equipment Manual tools	Wounds caused by scissors or knives	T : Using blunt-tip knives or scissors which shall be sheathed during box/basket handling and when moving to another place. PPE : Cut resistant gloves.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool " Tractor ".
Agricultural machines transit	Human-machine interference	O/P 1 : Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2 : Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Repetitive motions. Wrong postures. Lifting and movement of loads	T 1 : Using a wheelbarrow to avoid lifting and transporting the bucket/box during the harvesting. T 2 : Using easy-grab containers. O/P 1 : Taking turns with other operators among the different actions (picking and other operations) and/or O/P 2 : Suitable working hours with sufficient breaks. O/P 3 : Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 4 : Loading the trailer below the operators' shoulders' height. SS : Medical monitoring. F/I : Training and information as per support tool " Information and training on risks from manual handling of loads ".
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P : Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus, hymenoptera stings	O/P 1 : Verifying anti-tetanus vaccine coverage. O/P 2 : Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1 : Presence of a first aid box near the area where the harvest take place. O/P 2 : Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

MANUAL HARVESTING OF ARTICHOKEs

- The support tool identifies the **prevention and protection measures** for the **steps of the work process/activity** and for the **risks** indicated.
- The employer implements the measures relevant to the **steps of the work process/activity** and to the **risks** that are actually present in the farm, among those reported below.
- The **prevention and protection measures** associated to the risks present in the farm but not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Steps of the work process/ activity		Work equipment
• Harvesting the spine artichoke • Cutting the stem with a knife • Placing the produce into the basket or wheelbarrow. • Harvesting the spineless artichoke • Picking by manual detachment or with knife • Placing the produce into the basket or wheelbarrow. • Delivery of the harvest • The produce is loaded on a trailer or put into bins for later transport by tractor.		• Bin • Wheelbarrow • Shoulder-strap basket • Knife • Trailer • Tractor 
 Harvesting with shoulder-strap basket  Picking the spineless artichokes		

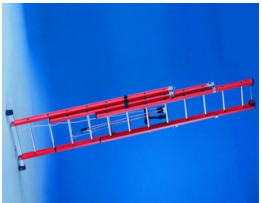
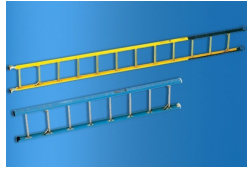
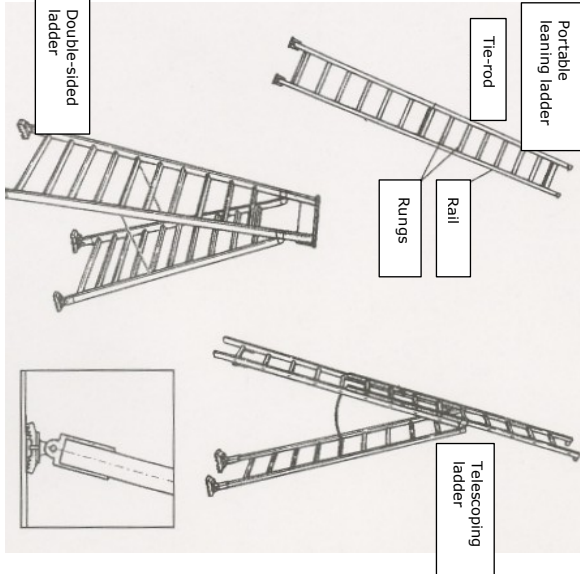
Dangers	Risks	Prevention and protection measures (1)
Fields, woods and other land in the farm	Slip or trip hazard	O/P: Making sure the appropriate shoes are used: closed toe and anti-slippery sole.
Fields, woods and other land in the farm	Contact with plants	O/P: Making sure that coating garments are worn for spine artichoke harvesting. PPE 1: Protective goggles for spine artichokes. PPE 2: Anti-piercing apron for spine artichokes. PPE 3: Cut and piercing resistant gloves.

Prevention and protection measures (1)		
Dangers	Risks	
Adverse weather conditions	Exposure to heat, cold, rain, wind, solar radiation	O/P 1: Making sure appropriate work garments are worn according to the weather conditions (e.g. hat, raincoat, breathable garments). O/P 2: Breaks in appropriate rest area (i.e. shaded area) with variable frequency depending on weather conditions. Making drinks available to allow good hydration.
Work equipment	Wounds caused by knives	T: Using blunt-tip knives, which shall be sheathed during basket handling and when moving to another place. PPE: Cut and piercing resistant gloves.
Work equipment	Mechanical or electric risks	For tractor safety issues, see the support tool "Tractor"
Agricultural machines transit	Human-machine interference	O/P 1: Operational instructions for agricultural machines transit to avoid interference during loading. O/P 2: Operational instructions to prevent people from being transported on trailers.
Manual handling of loads	Wrong postures. Repetitive motions. Lifting and movement of loads	T 1: Using padded shoulder straps to prevent shoulder injuries. T 2: Using smaller baskets. O/P 1: Using two operators when the load to be moved is heavier than 20 kg for men and 15 kg for women. For workers aged 18 to 45, such values become 25 kg for men and 20 kg for women. O/P 2: Using a loading surface at a height lower than the operators' shoulders. O/P 3: Suitable working hours with sufficient breaks and/or O/P 4: Taking turns with other operators among the different actions (picking and other operations) F/I: Training and information as per support tool "Information and training on risks from manual handling of loads". SS: Medical monitoring.
Hazardous substances: chemicals	Exposure to phytosanitary products	O/P: Respect of preharvest intervals indicated on the label of phytosanitary products.
Biological agents	Exposure to tetanus Hymenoptera stings	O/P 1: Verifying anti-tetanus vaccine coverage. O/P 2: Implementation of the relevant first aid measures.
Work in isolated places far from the farm	Delay in first aid delivery	O/P 1: Presence of a first aid box near the area where the harvest take place. O/P 2: Presence of a suitable means of communication near the harvesting area, to quickly contact national emergency services.

(1): O/P (organizational/procedural measures), T (technical measures), F/I (training/information), SS (medical monitoring), PPE (personal protective equipment).

PORTABLE LADDERS

- The support tool identifies the **prevention and protection measures** for the equipment defined in the description.
- The employer implements the **prevention and protection measures** relevant to the equipment that is actually present in the farm, among those reported below.
- The **prevention and protection measures** associated with uses not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Description				
PORTABLE RUNG/STEP LADDERS can be divided into: • Leaning ladders: ◦ Single ladders. ◦ Italian ladders (modular) ◦ Extension ladders (mechanical or manual sliding). ◦ Transformable ladders. ◦ Single-rail ladders. • A-shaped ladders: ◦ Single-sided-A-shaped ladders. ◦ Double-sided-A-shaped ladders. ◦ Double-sided platform ladders. ◦ Tripod ladders. — Portable ladders must comply with article 113 or Annex XX of D. Lgs. 81/2008 and subsequent amendments and additions, with reference to the building provisions. — Wooden single-rail ladders must comply With D. I. 27/03/1998.	 Single-rail ladder  Transformable telescoping ladder  Italian ladder (modular)  Tripod ladder		Reference • D. Lgs. 81/2008 and subsequent amendments and additions (Title IV - art. 113 and Annex XX) • D. I. 27/03/1998 Types of ladders  Portable leaning ladder Tie-rod Rail Rungs Telescoping ladder Double-sided ladder	

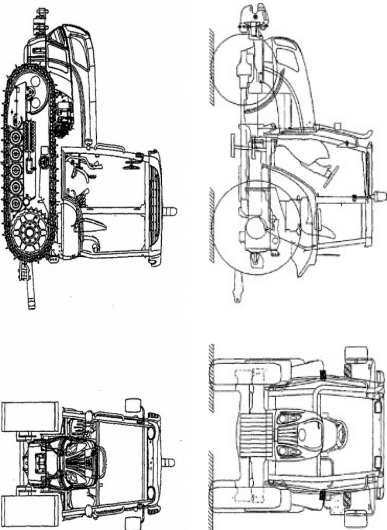
Prevention and protection measures (1)	
Safety requirements	
T 1: the ladders are in good condition, without any wearing/damage that may jeopardize their resistance and functionality. No ladder is used with wood slats nailed to the rails to replace broken rungs. T 2: the ladders are equipped with anti-slippery feet at the bottom end of the rails. T 3: the ladders composed of two or more elements to be plugged shall meet the following requirements: the length during use shall not exceed 15 m, except for special needs, in which case the upper ends of the rails shall be secured to a fixed part; ladders that exceed 8 m length shall be equipped with a standoff to reduce inflection. T 4: double-sided ladders shall not exceed 5 m in height and be equipped with a sufficiently resistant chain or some other device to prevent the ladder from opening beyond the safety threshold. T 5: Portable ladders compliant with Annex XX of D.Lgs. 81/2008 and subsequent amendments and additions are provided with the certifications required by the relevant technical standard, and come with a specific sheet or booklet. T 6: Single-rail wooden ladders have a visible marking with identification of the constructor, year of manufacture and maximum load, and are provided with specific sheet or booklet in compliance with D.I. 27/03/1998.	
Instructions for use	
• Before use, make sure that: O/P 1: no element of the ladder is missing; if applicable, the rubber or plastic anti-slippery feet are correctly position on the lower ends of the rails. O/P 2: the ladder rests on a stable and resistant support, which has suitable dimensions and does not move, so that the rungs/steps are kept in horizontal position. O/P 3: the feet cannot slip during use, securing either the upper or lower part of the rails, or using any anti-slippery device, or implementing any other equally effective solution. O/P 4: the ladders used for access can protrude beyond the access level, unless other devices can guarantee a secure grip. O/P 5: the ladders composed of several plugable elements or extension ladders are used if the elements are mutually secured. O/P 6: appropriate shoes are worn to have secure grip on the rungs/steps. O/P 7: in the proximity and above there are no hazards, such as power lines, unprotected live parts, holes. • During use: O/P 1: the ladders shall be properly secured or retained by another operator on the ground if their height or other factors can lead to sideslip. O/P 2: of ladders composed of two or more elements to be plugged, an operator performs a constant monitoring from the ground. O/P 3: of ladders composed of two or more elements to be plugged, nobody shall be on the ladder during side displacement. O/P 4: of ladders, a secure support or grip must always be available. In particular, hand transportation of loads while on the ladder must not preclude a secure grip.	

(1): O/P (organizational/procedural measures), T (technical measures).

TRACTOR

Support tool N.31

- The support tool identifies the **prevention and protection measures** for the equipment defined in the description.
- The employer implements the **prevention and protection measures** relevant to the equipment that is actually present in the farm, among those reported below.
- The **prevention and protection measures** associated with uses not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

Description		Reference
The support tool covers any agricultural or forest tractor, either with wheels or with tracks, with an engine, at least two axes and max speed above 6 km/h. It must be intended for pulling, pushing, transporting or transferring motion to specific inter-changeable equipment, which are used for farming or forest activities, or for towing trailers.		

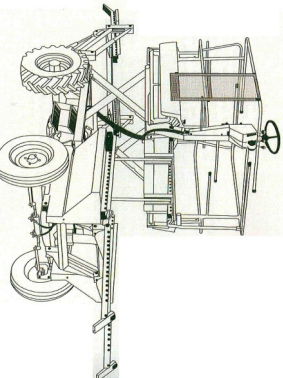
- D.Lgs. 81/08 and subsequent amendments and additions (Title III chapter 1).
- D.Lgs. 285/1992.
- D.Lgs. 17/2010. D.M.
- 19/11/2004. D.M.
- 07/04/2011. D.I.
- 20/05/2015.
- State-regions agreement 22/2/2012.

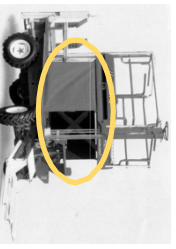
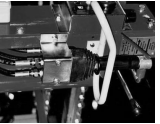
Tractor DOCUMENTATION	Reference
Unregistered tractors Certificate or declaration of conformity with type approval. Registered tractors Registration certificate.	D.M. Infrastructures and transports of 19/11/2004 implementing directive 2003/37/EC. D.Lgs. 285 of 30/04/1992 (art. 76, par 6).
Tractors marketed after 06/03/2010 Declaration of compliance with Directive 2006/42/EC.	D.Lgs. 17/2010 implementing directive 2006/42/EC.
Tractors that were type approved starting on 07/05/1997 Technical attachment.	D.M. Infrastructures and transports of 19/11/2004 implementing directive 2003/37/EC.
Tractors marketed after 06/03/2010 Instruction manual.	D.Lgs. 17/2010 implementing directive 2006/42/EC. D.M. Infrastructures and transports of 07/04/2011 implementing directive 2010/52/EC.
INFORMATION, TRAINING, INDUCTION AND QUALIFICATION FOR USE	Reference
Documents certifying that the operator received information, training, induction and qualification for the use of the tractor.	Articles 36, 37 and 73 of D.Lgs. 81/2008. State-regions agreement 22/2/2012.
MAINTENANCE	Reference

Performance of maintenance to ensure the safety requirements continue to be met. Inspections results shall be written down.		D.Lgs. 81/08, Art. 71, par 4, lett. <i>a</i>), point 2, par 8, lett. <i>b</i>) and par 9.
SAFETY REQUIREMENTS		
RISK	MEASURE	
Overturn	The tractor is equipped with: ■ An overturn protection device (cabin or frame) allowing a certain safety volume around the driver's seat; ■ Safety seat-belt for the driver and for the passenger, if applicable. Only carry passengers in the field if the overturn protection device guarantees an adequate protection for the passenger too. Otherwise, passengers can <u>only</u> be carried on the public road; ■ Ballasts, if specifically devised by the tractor manufacturer.	
Snagging , pinching and shearing	The tractor is equipped with guards that block the access to areas where moving parts may be dangerous in case of accidental contact. The guarded parts are: ■ Both front and rear power take off; ■ Power transmission belts (e.g. alternator, dynamo, fan); ■ cooling system fan; ■ elements that may represent pinching or shearing hazards while the operator is in driving position (e.g. junction system in jointed tractors); ■ other moving parts (e.g. PTO shaft taking motion to the front wheels).	
Contact with hot parts	The tractor is equipped with external carters on the exhaust gas system (silencer, manifold, etc.) and on cylinders and cylinder heads, if near the access point to driver's seat.	
Slip, fall	The tractor is equipped with elements to facilitate the access to the driver seat (steps, ladders, handles and handrails) if the driver's seat platform is higher than 550 mm from the ground. The tractor is equipped with handrails or handles so as to ensure three handholds for the operator to get on and off the driver seat. In tractors with tracks, track pads can be used as steps if three handholds in total are available for the operator. If the tracks are used as steps, the vertical distance between the track and the platform of the driver seat shall not exceed 500 mm.	
Accidental displacement	The tractor is equipped with devices that prevent the engine from turning on if such operation would cause uncontrolled displacement (e.g. when in gear) or the front or rear power take off to move.	
Runover or crash	The tractor is equipped with: ■ rear view mirror on the left side (not necessary for non-registered tractors that cannot travel on public roads); ■ windshield wiper if a windshield is present; ■ lighting and light-signaling devices; ■ horn.	
Noise	The tractor is equipped with silencer for the terminal part of the exhaust gas system (muffler).	

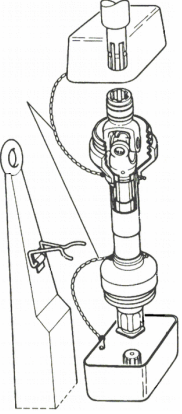
Agricultural machine: mobile harvesting platform

- The support tool identifies the **prevention and protection measures** for the equipment defined in the description.
- The employer implements the **prevention and protection measures** relevant to the equipment that is actually present in the farm, among those reported below.
- The **prevention and protection measures** associated with uses not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.

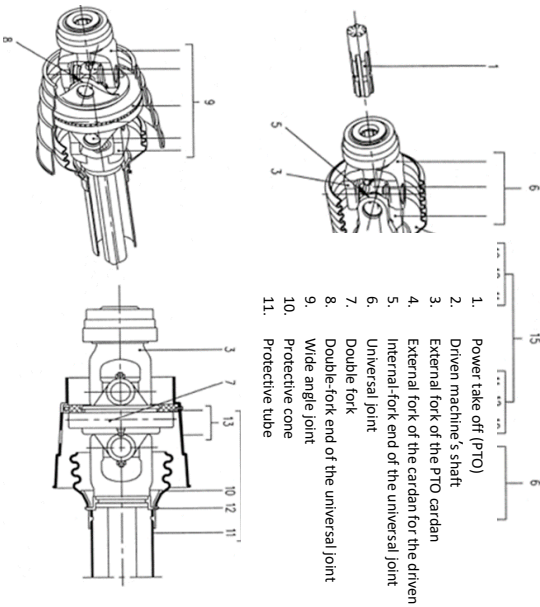
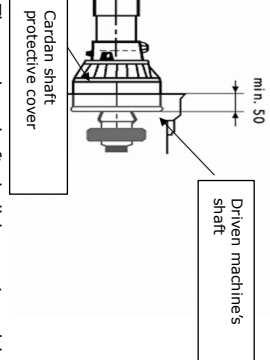
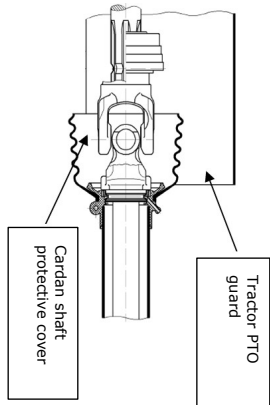
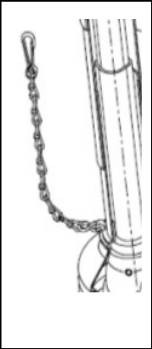
Description		Law, technical standards and reference technical documents
The support tool identifies the prevention and protection measures for a mobile harvesting platform, which is defined as a self-propelled work platform intended to operate on the ground, even a bumpy one, to move one or more operators who are positioned to harvest fruit, thin out or trim plants, and perform other maintenance to the trees standing on the platform. Fruit is picked and put into containers (big boxes, bin, etc.) that are on the platform.		D.Lgs. 81/08 and subsequent amendments and additions (Title III chapter I) D.Lgs. 17/2010 D.M. 11/04/2011
COMPULSORY DOCUMENTS		
Certificate of conformity with directive 98/37/EC for machinery marketed or commissioned from 31.12.1996 to 5.3.2010.	DPR 459/96 implementing directive 98/37/EC	
Certificate of conformity with directive 2006/42/EC for machinery marketed or commissioned from 6.3.2010.	D.Lgs. 17/2010 implementing directive 2006/42/EC	
Instructions for use, mandatory for all the machinery marketed or commissioned after 31.12.1996.	DPR 459/96, D.Lgs. 17/2010	
Technical sheet and verification reports	art. 71 par 11 of D. Lgs. 81/08 and D.M 11/4/2011	
INFORMATION TRAINING INDUCTION AND QUALIFICATION FOR USE		
Documents certifying that the operator received information, training and induction to drive the machine		Articles 36, 37 and 73 of D.Lgs. 81/2008

SAFETY REQUIREMENTS	
Risk	MEASURE
Snagging, pinching and shearing	The machine is equipped with safety devices to prevent crushing and shearing. Such requirement is met, as an example, through respect of minimum 25 mm space between moving parts and between moving and fixed parts. In the cases where minimum spaces are not guaranteed, one of the following solutions shall be implemented: - guards - protective cloths - two-hand control devices, which require the operator to use both hands simultaneously - safety devices that prevent the platform from descending if the operator or their hands are in the crushing area. 
Stability	The machine is equipped with: - devices that prevent the machine from moving faster than the harvesting speed if the platform is not in rest position. Such requirement is met, as an example, through microswitch, proximity detector, encoder. The device is exclusively related to the position of the platform and does not apply to the decks. - devices that prevent the platform from moving up or down during displacement at travel speed. - Governors for both harvesting and travel speed. - inclinometer, which warns the operator, by means of visual or acoustic signals, that the maximum longitudinal and lateral stability limits are about to be reached.
Fall from heights	The platform of the machine is equipped with railings composed of upper guard rail, intermediate guard rail and toe board. The toe board may be replaced by a lower guard rail. The toe board is not required at bin access area. 
Accidental descent of the platform	The machine is equipped with a protection device preventing the platform from accidentally going down (e.g. safety valves) 
Uncontrolled movement	The machine is equipped with emergency stop and parking brake. In some machines, the parking brake is automatically activated every time the machine stops. 
Runover or crash	The machine is equipped with horn.
Accidental operation of the controls	The machine is equipped with a device that prevents controls from being accidentally operated by operators, other people or other elements (branches, etc.). The levers of the hydraulic servo controls are non-release hold type. 
Unauthorized operation	The machine is equipped with a device that prevents unauthorized people from using it, e.g. ignition key.
Electrical risk	Electricity cables are protected from contact with abrasive metallic surfaces and are either resistant to lubricants and fuel contact or protected from contact with such substances. The cables are positioned so as to avoid contact with exhaust gas system, moving parts and sharp edges.
Slip, fall	Appropriate access facilitating elements are present (e.g. steps or ladders). If the driver seat floor level is higher than 550 mm from the ground, ladders and steps shall have handrails and handles on both sides.
Accidental contact with moving parts	The machine is equipped with guards or barriers so as to prevent the moving parts of the power drive system from being accidentally touched. The guards can be: - fixed and secured with screws, bolts, etc. that can only be removed by means of specific tools (e.g. screwdrivers, wrenches, etc.); - hinged, so that they can be opened using specific tools, and with automatic closing and locking systems that do not require any tool; - Mobile and associated to an interlock device that prevents dangerous functions of the machine from being started until the guards are closed, and to a machine stop system that operates as soon as the guards are opened.
Hot surfaces	Presence of protections or insulation of hot surfaces near steps, handrails, handles and parts of the machine that may be used as means of access. The protections may also be made of perforated sheets.

Cardan shaft		
Support SHEET No. 33		
	-- The support tool identifies the prevention and protection measures for the equipment defined in the description. - The employer implements the prevention and protection measures relevant to the equipment that is actually present in the farm, among those reported below. - The prevention and protection measures associated with uses not covered by this support tool (or partially covered or not completely matching the actual situation in the farm) shall be integrated by the employer.	

Description The sheet specifies the safety requirements for cardan shafts (and their protections) connecting driving machines' power take off to the first fixed element of the driven machines		
		Law, technical standards and reference technical documents - D.Lgs. 81/08 and subsequent amendments and additions (Title III chapter 1) - D.P.R. 459/99 - D.Lgs. 17/2010

Machine DOCUMENTATION		Reference
Declaration of compliance with Directive 2006/42/EC. <i>Applies to all cardan shafts marketed after 06/03/2010</i>		D.Lgs. 17/2010 implementing directive 2006/42/EC
Certificate of conformity with directive 98/37/EC for all cardan shafts marketed or commissioned from 21/09/1996 to 5/03/2010.		D.P.R. 459/96 implementing directives 89/392/CEE, 91/368, 93/44 and 93/68
Instructions for use, mandatory for all the machinery marketed or commissioned after 21/09/1996.		D.P.R. 459/96 implementing directives 89/392/CEE, 91/368, 93/44 and 93/68 D.Lgs. 17/2010 implementing directive 2006/42/EC
INFORMATION TRAINING INDUCTION AND QUALIFICATION FOR USE		Reference
Documents certifying that the operator received information, training and induction to use the cardan shaft		Articles 36, 37 and 73 of D.Lgs. 81/2008
MAINTENANCE		Reference
Performance of maintenance to ensure the safety requirements continue to be met		D.lgs. 81/08, art. 71, par 4, lett. a), point 2, par 8, lett. b) and par 9.

SAFETY REQUIREMENTS		
RISK	MEASURE	
Snagging, pinching and shearing Injuries caused by accidental contact with moving parts	Universal joint cardan shafts and wide-angle cardan shafts shall be equipped with protections for forks and telescoping tube, as shown in the picture:  1. Power take off (PTO) 2. Driven machine's shaft 3. External fork of the PTO cardan 4. External fork of the cardan for the driven machine's shaft 5. Internal-fork end of the universal joint 6. Universal joint 7. Double fork 8. Double-fork end of the universal joint 9. Wide angle joint 10. Protective cone 11. Protective tube Parallel overlapping between the protection of the cardan shaft and that of the PTO shall be guaranteed.  min. 50 Driven machine's shaft Cardan shaft protective cover Parallel overlapping between the protection of the cardan shaft and that of the driven machine's shaft shall be guaranteed, at least by 50 mm. Such minimum overlapping shall also apply to the protections devices for wide angle cardan shafts and when clutches or other components are used.  Tractor PTO guard Cardan shaft protective cover  The cardan shaft shall be equipped by a retaining device (chain) to prevent shaft protection from turning. The retaining system shall be connected to the shaft protection and equipped with a spring hook to connect to fixed elements of the machine.	

INFORMATION, TRAINING AND INDUCTION RISKS OF MANUAL HANDLING OF LOADS

- The tool identifies the minimum elements for information and training about causes of risk to develop medical conditions due to biomechanical overload, especially dorsal-lumbar ones, caused by **manual handling of loads (MHL)** and about the modes of correct performance of such handling.
- With a view to informing and training the workers, the present tool completes the support tools where it is mentioned.
- The contents of the present tool can be used to perform workers induction with reference to MHL.

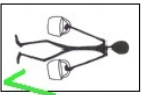
Definition and description of the risk

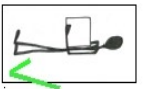
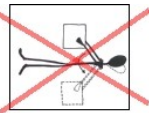
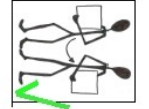
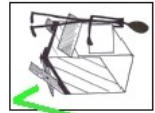
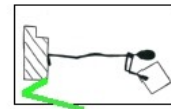
Manual handling of loads refers to one of the following actions performed by one or more workers: lifting, holding, putting down, pushing, pulling, carrying or displacing a load weighting at least 3 kg.

The damage that MHL may produce is either cumulative and caused by wear to the musculoskeletal system, due to repeated actions of lifting and handling, or acute like wounds or fractures in the event of an injury.

Each worker's specific characteristics (gender, age, physical suitability, insufficient or inadequate know-how or training), which are individual risk factors, affect the likelihood of damage production by MHL.

According to the instructions of the specific support tools, the workers with exposure to MHL undergo medical monitoring.

Elements to be considered		Correct performance		
Load weight	Handling loads exceeding the maximum allowed weight can cause muscle, bone and joint overload and the onset of dorsal-lumbar conditions.	Maximum recommended load weight, in kg:		
		AGE	MALE	FEMALE
		18 to 45 yo	25	20
		Up to 18 yo and over 45 yo	20	15
		In agricultural activities that involve manual handling of loads, the load can be reduced through simple organizational measures, e.g.: - limiting, if possible, the content of container; - handling one container at a time; - using wheelbarrows, trolleys or other wheeled equipment and bins; - handling the containers in pairs (two workers); - implementing staff rotation during the day.		
Bulky load	The load cannot be kept close to the body, thus getting muscles tired more quickly. It may reduce visibility during transport, thus increasing the likelihood of injuries due to falls and impacts.	When a load is lifted (even if not bulky) from the ground, bend your knees, keep one foot forward for balance, bring the object near your body and rise up while lifting the load and keeping your back straight. When the dimensions of a load reduce visibility during transport, two operators shall handle it or one operator shall use handling equipment.		
Hard-to-grab load	It increases the risk of injuries due to load falling. Lifting and displacing loads with bent wrists increases muscle fatigue.	The ideal grab for lifting and transporting a load requires handholds, such as handles or suitable grooves. Avoid grabbing with fingertips. Handle loads with both hands and comfortable wrist position.		
				
Unstable or asymmetric load	Transporting unstable or asymmetric loads entails greater stress for the musculoskeletal system, especially when fluids, whose center of gravity changes as they move, are carried.	Make sure the weight of the load to be handled is evenly distributed and that it doesn't move during lifting and transport.		
		 		

Load grabbed, transported or put down far from the body	When a load is grabbed, transported or put down keeping hands far from the body, the muscles face greater fatigue.	Loads should be kept as close to the body as possible when grabbed, transported or put down.	 
Handling with trunk rotation	When a load is handled rotating the trunk, the musculoskeletal system is under greater stress.	Avoid rotating your trunk, if necessary rotate the whole body moving your feet instead.	 
Load handling height	When handling a load, the height it is handed at affects muscle fatigue.	Loads should be handled: - with similar heights for grabbing and putting down; - in the area included between shoulders and hands stretched downwards; - with grabbing and putting down levels included between head and feet heights.	   
Environment	The environment where MHL is performed can affect muscle fatigue and risk of injuries (room for handling, walking floors, lighting).	Before starting handling: - to reduce the risk of tripping or impact, remove any obstacles or identify the best pathway to avoid them; - make sure the operators' shoes have anti-slippery soles, and are correctly worn and tied; - In case of poor lighting, make sure the working area is obstacle-free.	
Towing and pushing an object	Starting a movement requires a greater effort than just maintaining motion. Slopes, wet floors, slippery or bumpy grounds can cause greater muscle fatigue and may cause injuries due to loss of control on the object.	For correct transporting using wheelbarrows, trolleys or other equipment with wheels: - identify in advance the most linear and obstacle-free pathway; - avoid jerks and sudden changes of direction or frequent interruptions of transporting; - leverage your body weight to handle the object: leaning forward while pushing and backward while pulling; - make sure that the equipment used for handling is in good working order (wheels, handles, braking systems if applicable, etc.).	 

INFORMATION, TRAINING AND INDUCTION RISKS OF PHYSICAL AGENTS - NOISE

- The tool identifies the minimum elements for information and training about causes of risk to develop medical conditions due to noise exposure, and about protection and prevention measures to be implemented.
- The contents of the present tool can be used to perform workers induction with reference to noise.

Definition and description of the risk

The damage a person may suffer subsequent to noise exposure are direct (reduction of hearing capability) and indirect (hypertension, tiredness, fatigue, sleep disorders, irritability).

The extent of the damage depends upon exposure duration and noise type and intensity. When assessing a noise, the following is considered:

- 1. daily noise exposure level ($L_{ex,8h}$)** measured during a nominal working day of eight hours. It refers to all noise in the workplace, including peak noise. If the level changes in time, the day to be assessed shall be representative of the most frequent situation.
 - 2. weekly noise exposure level ($L_{ex,w}$)** measured on daily exposure levels for a nominal working week of five working days of eight hours. Such parameter is used when exposure level shows a notable variation through different days. If the level changes in time, the week to be assessed shall be representative of the most frequent situation. The assessment of weekly noise exposure is compulsory if noise level varies much from one day to another, however daily limit values can never be exceeded.
 - 3. peak sound pressure (p_{peak})**, that is the maximum value of instant sound pressure (e.g.: an airplane taking off, the bang of a powerful press, etc.).
D.19s. 81/08 sets two **exposure limit values** (sound pressure level: **$L_{ex}=87\text{ dB(A)}$** and peak sound pressure level: **p_{peak}=140 dB(C)**), which cannot be exceeded. If such limits are exceeded, the employer shall immediately implement those measures that allow to bring exposure levels below such values.
- In addition to limit values, further values are identified based on which the employer establishes the different prevention and protection measures to be adopted: **upper exposure action values - $L_{EX} = 85\text{ dB(A)}$ and p_{peak} = 137 dB(C)** - and **lower exposure action values - $L_{EX} = 80\text{ dB(A)}$ and p_{peak} = 135 dB(C)**.
- The employer shall inform the employee about their noise exposure level value. If (daily or weekly) exposure exceeds the lower action values, the employer shall have employees informed and trained with reference to noise exposure risks.

For activities that entail a strong fluctuation of personal exposure levels, the employer can assign a noise exposure value that exceeds the upper action level, guaranteeing of prevention measures: PPE, information and training and medical monitoring.

Elements to be considered		Prevention and protection measures
Noisy work equipment	The noise is mainly produced by work equipment. The emission of noise can, therefore, be reduced at its source by choosing less noisy equipment or by insulating the most noisy components of work equipment, where possible.	Work equipment shall be selected among those with the lowest noise emission, according to the work to be performed. Work equipment shall be maintained in order to keep noise emission level low. Each worker shall: • use work equipment correctly; • signal any malfunction immediately; • Avoid to deliberately perform operations or actions that do not fall within their task, or that may compromise their safety or that of the other workers.
Work organization	Noise exposure can be sufficiently reduced by means of an effective work organization, considering both the activities to be performed and the personal characteristics of each worker (age, body, preexisting conditions).	Noise exposure can also be reduced through noise duration and intensity reduction, by having the operators taking turns to do the different tasks and establishing appropriate working hours with sufficient breaks. The employees shall follow the employer's instructions with respect to: • use of working methods that allow a lower exposure to noise; • verifying and reporting any negative effects of health caused to noise exposure (art. 184, par. 1, letter d)); • Displacing the source of noise (compressor, power generator, etc.) far from the working area or screening it, if possible.

Safety signs	Areas or operations where noise exceeds the upper exposure action values	The areas where operations may expose workers to noise levels that exceed the upper action values are indicated by dedicated signs. Such areas are also delimited and access is restricted if technically possible and justified by the exposure risk.
Personal protective equipment (PPE)	If noise cannot be reduced enough by means of technical and organizational measures, implementing the use of PPE is mandatory. The selection of PPE implies considering the individual ergonomics and health needs for each worker. Earplugs, for example, can be used in case of intense sweating (working at high temperatures, very humid environments) or when glasses are worn.	When the lower action values (LEX = 80 dB(A)), ppeak = 135 dB(C)) are exceeded, hearing protections shall be made available to the workers. If noise exposure is equal to or higher than upper action values (LEX = 85 dB(A)), ppeak = 137 dB(C)), the use of hearing protections is mandatory. Hearing protections must respond to requirements that are different according to the task to be performed and the individual wearing them. When choosing them, the specific characteristics of each worker need to be considered too, such as narrow ear canal, use of glasses or other PPE (helmet, goggles, respirator). The worker must: • wear PPE, if applicable, and use it appropriately; • inform the employer or supervisor of any defect or malfunction of the PPE he received; • take care of the PPE received and avoid tampering with it. The PPE must be used from the start of activities that cause noise exposure, and till they are completed; otherwise the actual protection can be strongly reduced. Types of hearing protections: Earplugs: to be inserted in the external acoustic meatus, they can be made of rubber, fiberglass, cotton mixed with wax. They can reduce the sound level from 10 to 35 dB(A). They can be: - Reusable: to be washed after each use, available in various sizes to fit the user - Disposable: more hygienic. Earplugs with arch: equipped with a flexible arch and replaceable foam plugs, they are suitable for people who get in/out frequently from noisy environments. They have the same noise reduction capacity as earplugs. Disposable plugs or arch plugs are recommended in hot and humid environments, when the worker moves his head frequently or when other PPE is worn on the head (helmets, goggles) Earmuffs: composed of two plastic rigid earcups that can adapt to the pinna, an elastic arch and a polyurethane lining. They are excellent protectors and can attenuate noise from 25 to 40 dB(A), therefore are recommended for particularly noisy environments. Earmuffs are a better choice in case of repeated exposure of short duration noise, when they often need to be taken off, and in case of ear inflammation Always handle the protectors with clean hands, avoiding any contamination with fluids or dust, which may cause irritation. Reusable protectors shall be regularly checked and cleaned. Disposable plugs cannot be reused, while other plugs shall be carefully washed before wearing them. Reusable PPE shall always be worn by the same person; however, earmuffs can be shared if disposable covers are used on the pads. PPE must be stored in compliance with the manufacturer's instructions, and frequently checked for faults or damage. Worn-out earmuff pads and deformed earplug arches should be replaced.
Use of hearing protections	In agricultural activities where lower action values are exceeded, the workers who receive the PPE, also receive a specific training for its use and are asked an opinion for its selection.	
Medical monitoring	In those agricultural activities where upper action values for noise are exceeded, workers are subject to medical monitoring.	When upper action values for noise are exceeded, the employer must appoint an occupational health physician. Workers whose exposure exceeds the upper action values are subject to medical examinations performed every year, or with different frequency as established by the occupational health physician. Medical monitoring is extended to workers whose exposure exceeds the lower action values, if the request it and if the physician confirms its suitability. The workers must undergo medical examination as established by the occupational health physician. If ototoxic substances are used (e.g. toluene, lead, manganese, n-butyl alcohol), medical monitoring is performed accordingly

INFORMATION, TRAINING AND INDUCTION RISKS OF PHYSICAL AGENTS - VIBRATIONS	
- The tool identifies the minimum elements for information and training about causes of risk to develop medical conditions due to vibration exposure, and about protection and prevention measures to be implemented. - The contents of the present tool can be used to perform workers induction with reference to vibrations.	

Definition and description of the risk		
Exposure to vibrations can involve the whole body or just the hand-arm system. Exposure to vibrations for the whole body is usually caused by the performance of work activities on means of transport or handling, while exposure for hands and arms is generally caused by contact between the hand and the grip of manual tools or hand-driven machinery. Vibrations can be transferred to the whole body by machines like tractors or combine harvesters, while sources of vibrations that are conveyed to hands and arms can be lawnmowers, walk-behind tillers, chainsaws and brush cutters. Health problems related to whole-body exposure are mainly osteoarticular (lower back pain, disc disease, discal hernia, etc.). Health problems related to hand and arm exposure are mainly neurovascular (Raynaud syndrome, also known as “vibration white finger”, etc.). Exposure levels can be assessed observing the working conditions and making reference to equipment information available in the database of INAIL or of the Regions or, if absent, to the information provided by the manufacturer. If the employer assesses a vibrations risk exposure that exceeds the action values, they shall inform the exposed workers and guarantee prevention and protection measures, especially PPE, information and training and medical monitoring. When assessing vibrations exposure risk, the following is considered: 1. daily exposure to vibrations transmitted to the hands and arms A(8): average value of accelerations measured during a nominal working day of 8 hours. 2. weekly exposure to vibrations transmitted to the whole body A(8): average value of accelerations measured during a nominal working day of 8 hours. D.Lgs. 81/2008 and subsequent amendments and additions sets out exposure limit values that cannot be exceeded. If such limits are exceeded, the employer shall immediately implement those measures that allow to bring exposure levels below such values. For vibrations transmitted to arms and hands the daily limit value for 8 hours is A(8) = 5 m/s² while that for short time spans is A(8) = 20 m/s². For vibrations transmitted to the whole body the daily limit value for 8 hours is A(8) = 1.0 m/s² while that for short time spans is A(8) = 1.5 m/s². In addition to limit values, D.Lgs. 81/2008 and subsequent amendments and additions sets out further values, based on which the employer shall identify the relevant prevention and protection measures: daily action value for 8 hours to the hand-arm system - A(8) = 2,5 m/s² and daily action value for 8 hours to the whole body - A(8) = 0,5 m/s². If the daily exposure level is much variable, the maximum recurring daily level shall be considered.		
Elements to be considered	Prevention and protection measures	
Work equipment produces vibrations	Vibrations are mainly produced by work equipment. Therefore, vibrations exposure can be reduced at its source by choosing equipment that produced less vibrations.	Work equipment shall be selected among those with the lowest vibrations level, according to the work to be performed. When the daily action limit is exceeded, the employer implements immediate measures to bring exposure levels back below such value. In case of hand-arm exposure, they can provide the workers with cushioned grip tools with thermal insulation coating or with anti-vibration gloves, which also protect from cold temperatures that would make vibrations damage worse. In the case of whole-body exposure, the employer shall provide shock-mitigating suspension seats, to be adjusted according to vehicle and driver. Work equipment shall be maintained so as to keep vibration levels low, periodically checking for wear the damping elements. Each worker shall: • use work equipment correctly; • signal any malfunction immediately; • avoid to perform operations or actions that may compromise their safety or that of the other workers.

Work organization	Vibration exposure can be sufficiently reduced by means of an effective work organization, considering both the activities to be performed and the personal characteristics of each worker (age, body, preexisting conditions).	The exposure can also be minimized through duration and intensity reduction, by having the operators taking turns to do the different tasks and establishing appropriate working hours with sufficient breaks. The employees shall follow the employer's instructions with respect to : • use of working methods that allow a smaller exposure to vibrations; • use of working methods that require a smaller exposure to vibrations; • taking turns among several workers for the performance of high vibration exposure tasks; • checking and adjusting the vehicle's seat each time the driver changes; • prohibiting the operations with higher exposure to vibrations than the action level for people under-18 and pregnant women.
Personal protective equipment (PPE)	If the emission level of vibrations cannot be reduced enough by means of technical and organizational measures, using PPE is mandatory. The selection of PPE implies considering the individual ergonomics and health needs for each worker.	If daily action value (for hand-arm or body) is exceeded, protection equipment shall be made available to the workers. PPE must respond to requirements that are different according to the task to be performed and the individual wearing it. When choosing it, the specific characteristics of each worker need to be considered too. The worker must: • wear PPE and use it appropriately; • inform the employer of any defect or malfunction of the PPE he received; • take care of the PPE received and avoid tampering with it.