



Work Safety - Edition 2014 Concise cards of major risks in agricultural activity

4 Mechanization - Card 04.02 Mechanical devices in motion



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THE RISKS:

- a. *Entangling and dragging* (caused by clothes, limbs and other body parts got tangled up in moving devices)
- b. *Upper limbs crushing* (due to lack of protections and worker's self-confidence excess)
- c. *Worker's and/or limbs' shearing/cutting off* (due to accidental break, structural failure and control mistake)

It is necessary to remind that:

Due to their operating characteristics, mechanical devices are usually difficult to protect. However, when both motion transmission and moving work elements constitute a detectable hazard, they shall be protected, isolated or provided with safety devices.

PRACTICAL AND OPERATING INDICATIONS:

Each moving element of the power transmission system shall be projected, built and placed in a way it is not reachable. Otherwise it shall be provided with shield or protection devices avoiding any contact risk and guaranteeing protection against hazards linked to access to power transmission moving elements.

Machines shall be provided with fixed protection.

If frequent access is needed, the machine shall be provided with a protection which can be opened only with a specific tool.

Propeller shafts, pulleys, belts, cables, drive chains, cylinders and cone clutches, cog-wheels and all the other transmission devices or elements shall be protected if they pose hazard.

Drive chains and their cog-wheels shall be protected with complete sheath when their position is accessible by people.

Cog-wheels, drive chains and other moving to-toothed elements shall be hold in metallic casing.

Web wheels shall be protected with toothing guards.

Protections shall be built to resist violent projection (by belts, cables, metallic pieces in case of break) or integrated with guards of suitable form, dimension and resistance.

Temporarily idle belts and out of order ones (for repair, junction or other reasons) must not being put on drive shafts nor touching moving elements.

Machine working devices and their operating areas shall be protected, isolated or provided with safety devices, as far as possible, when they pose hazard for workers.

If it is impossible to protect or isolate completely moving devices and machine's hazardous operational zone for working reasons, non-protected parts shall be limited to the minimum and other alternative measures shall be adopted to minimize hazard.

If working devices not completely protected may grab, drag, crush and have considerable inertia, it is necessary that:

- operator has the control device at hand or within easy reach;
- the stop button of the machine operates on a system which blocks hazardous devices as soon as possible.

Feeding and unloading openings shall be provided with protections, such as



Moving devices with protection grid



Moving devices without protection



Isolated moving devices



Stop button of the machine

parapets, grids and coverings.

Working devices operating at high speed shall be fixed to shafts or to other devices from which they receive movement. In this way, their loosening, projection or expulsion are avoided.

All the machines which, during their running, may project material or grains, shall be provided with closing, guards or other measures in order to avoid operator being hit.



FURTHER INDICATIONS AND ADVICE

- Hands shall not be drawn up to moving devices.
- Working clothes shall not have belts, fluttering hems or parts which can be caught.
- Operator shall wear adequate DPI, such as gloves and safety shoes.
- Machines' protections and safety devices shall not be removed. If, for working necessity, they must be removed, other alternative measures must be immediately adopted to minimize hazard.
- It is necessary to verify that both the operating machine and tractor protections are present and efficient.
- Before every repair or maintenance of the machine, the tractor engine shall be stalled and switched off. The ignition key shall be pulled out and the instruction for use shall be read.
- Power take-off shall be unplugged during manoeuvres (especially when using pulling equipment) and at the end of the work, the operating machine shall be disconnected from the tractor.
- It is forbidden to draw up to the machine until its every component stops.
- It is necessary to replace the protection and the safety device as soon as possible or immediately after having finished maintenance.