# Hazards Points and Guarding on farm equipment Meeting Kit

It is important to be aware of **HAZARD POINTS** created by the motion of machinery components. Guards are the physical barriers that prevent access to these hazard points.

## POINT OF OPERATION AND MACHINE GUARDING

When it comes to machine guarding, you have to know what hazards you’re trying to protect against.

One of the most important areas for **machine guarding** is the point of operation.

**All machines consist of three parts**

- Operating controls
- Power transmission device
- Point of operation

**Operating controls** are mechanical or electrical controls allowing the operator to cut off power to a machine without leaving their operating position. **The power transmission** device refers to all parts of a mechanical system that transmit energy to the part of the machine performing the work. **The point of operation** is the point at which the work of the machine occurs, it is the point which is most likely to cause immediate harm to a worker. That’s because many potentially hazardous motions and actions occur at the point of operation.

Basic types of hazardous motions include:

- Rotating, Reciprocating, Transverse. In-running nip points

Basic types of hazardous actions include:

- Cutting, Boring, Shearing, Punching, Bending

# DANGERS OF HAZARDOUS ACTIONS AND MOTIONS OF FARM EQUIPMENT TO WORKERS

**Hazard Points**

**Shear/cutting points:** Shear points are created when the edges of two objects are moved close enough together to cut a material, as in the case of a pair of shears or an auger.

Workers should be aware of shear points and shields or use guards to prevent exposure or access.

**Pinch points:** Pinch points form when two objects move together and at least one of them is moving in a circle. Belt drives, chain drives and gear drives are other examples of pinch points in power transmission devices.

Body parts such as fingers, hands and feet can be caught directly in pinch points, or they may be drawn into the pinch points by loose clothing that becomes entangled.

**Wrap points:** Rotating shafts are the most common source of wrap point accidents, although any exposed machine part that rotates can be a wrap point. Clothing or hair can catch on a rotating part.

Workers who operate machinery should be aware of wrap points and should not wear loose clothing.

**Crush points:** Two objects can create crush points when they move toward each other or one object moves toward a stationary one. For example, hitching a tractor to an attachment may create a potential crush point.

Crushing injuries most commonly occur to fingers. To prevent a crushing injury, workers should be aware of crush points and wait until a tractor has stopped before stepping into the hitching area.

**Pull-in points**: Pull-in points usually occur when plant material or other obstacles become stuck in feed rolls or other machinery

parts, preventing the mechanism from operating. A worker trying to free such material without shutting down or locking out the power can be rapidly pulled into the mechanism when the material is freed.

**Free-wheeling parts**: Many machine parts continue to spin after the power is either shut off or locked out. Workers should not start repair or maintenance work until all parts have stopped moving, even if equipment is locked out.

# BEST GUARDING PRACTICES ON FARM EQUIPMENT

**Guarding in the form of a physical or other type of barrier can:**

- prevent contact with moving parts that do not require regular adjustment
- control access to dangerous moving parts, machines and equipment
- screen harmful emissions (eg radiation)
- minimise noise (use of sound-absorbing materials)
- prevent ejected parts or off-cuts from striking people.

**Safety solutions –** When implementing a guard, ensure that it:

- is a permanently fixed barrier, if access to the area of plant requiring guarding is not necessary during operation, maintenance or cleaning, or
- is an interlocked physical barrier, if access to the area requiring guarding is necessary during operation, maintenance or cleaning, or
- can only be altered or removed with a tool, if it is not reasonably practicable to use either a permanently fixed or interlocked physical barrier, or
- includes a presence-sensing safeguarding system, if it is not reasonably practicable to use either a permanently fixed, interlocked or fixed- in-position physical barrier.

**Guarding must:**

- be of solid construction, securely mounted and resistant to impact or shock
- prevent by-passing or disabling of the guard, and disable operation if it is removed
- not create a risk in itself (eg it must not obstruct operator visibility, weaken the plant, cause operator discomfort or create new hazards such as pinch points or sharp edges)
- be properly maintained, and enable ease of servicing, maintenance and repair
- control any risk from broken/ejected parts and workpieces.

## FINAL WORD

Working around moving parts on farm equipment can be very dangerous if safe work procedures are not followed. Machinery guards, when they are in place and properly maintained, provide a physical barrier to the hazard points and reduce the risk of injury.