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## Tips on Machine Safety

There are many different types of machines found on farms. If not operated or serviced properly and safely, these machines can cause serious injury or death. You need to understand basic machine hazards and how to stay safe.

**Wrap points** – Contact with these machine parts may result in an arm or leg being wrapped around them, being amputated or mutilated, or in some cases, the entire body being entangled, resulting in death. Examples include rotating shafts, which transmit power from one part of a machine to another. The Power Take-Off (PTO) shaft transmits power from a tractor to a trailing machine. Clothing or long hair can easily be caught on shafts with nicks and bumps or protrusions like bolts or grease fittings. **Shafts should always be shielded.**

**Pinch and pull-in points** – These machine parts can pull in an arm or leg, mutilate or amputate it, or pull in the entire body. Examples include gears, chain drives, belt drives, and sets of rollers. A finger or hand caught between two gears, or a chain and sprocket, or a belt and pulley, can easily be amputated. These must always be shielded except where the crop enters.

**Shear points** – Some machines have a moving part that comes close to a stationary part and can cut off what comes between them. These parts may or may not have been intended to shear. Examples include rotating knives, designed to shear crop material, and augers, not designed to shear but which will shear anything coming between it and its housing. When possible, these shear points should be shielded. However, there are times when it is not possible to shield them, for functional reasons.

**Crush points** – Working under a machine or component in its raised position, or one that is inadequately supported, may result in the machine unexpectedly dropping and crushing the person. Getting body parts between a moving machine and another object may result in

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crushing. Examples include working beneath machines supported only by a hydraulic system (which can leak or rupture); or beneath machines on blocks or jacks; working between a machine and a tree or building; or placing fingers between the tractor and implement hitches.

**Stored energy** – Machines with parts that are spring-loaded or operate under pressure have “stored” energy that increases danger when it is released. Examples include spring-loaded or pressurized parts, which can travel at high speeds if improperly released, or high pressure hydraulic fluid which can easily penetrate skin and cause severe damage. Other examples include machine parts that continue to rotate for several seconds or minutes after the power is turned off.

**Thrown objects** –Machines that eject pieces or materials create hazards to those in the path of the flying object. Examples include rotary mowers (for orchard, field, or lawn) and choppers for straw or brush.

## **What You Should Do**

- Be sure you have proper training for machines you are operating or working near.
- Always keep all shields and guards in place; tell your supervisor if one is missing.
- Stay away from crop intakes, rollers, or other unshielded moving parts.
- Shut off the power before connecting/disconnecting a machine component, such as the PTO shaft, or when servicing or unplugging a machine.
- Let all parts of a machine stop completely before touching or reaching in.
- Prevent the machine from being started while you are working on it, by removing the keys, locking the switch for electrical equipment, etc.
- Lower raised equipment when parking, to keep it from falling on someone.
- If you are working beneath a machine supported by hydraulic pressure, always support it with wood blocks or jack stands.
- Keep hands and fingers out of hitches
- Don't assume machine operators can see you when they back up, and stay away from machines being operated near walls or other structures
- When operating a loader, keep the load low for stability.
- Don't use your fingers or hands to look for or touch leaks in hydraulic hoses.
- If you must adjust or disassemble parts that are spring loaded, be sure you are trained to do it safely.
- Stay away from outlets where material is ejected from a machine, and wear eye protection if necessary.

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