

Ozo-Harvester

Appendix A: Background Information

What is harvesting?

Harvesting is when we collect the edible or valuable parts of a crop from wherever it is growing so that it can be processed, stored, or sold to a consumer. How this is done depends on the type of crop being harvested. Grains like wheat and many vegetables like potatoes can be harvested using large machinery to make the process quick and efficient. Fruits like apples, bananas, and tomatoes are much more delicate and more difficult to pick, so they must be harvested by humans rather than machines to avoid damaging the crop.

What are the most common crops in Saskatchewan?

The province's wide open fields and climate make Saskatchewan ideal for growing grain and cereal crops. In fact, Saskatchewan is the world's largest exporter of peas, lentils, peas, lentils, durum wheat, mustard seed, canola, flaxseed, and oats. In 2019 lentils produced in Saskatchewan made up over half of all the lentils exported around the world. If you don't know what a lentil is, it is a small edible seed like a bean but smaller and with a more circular shape. Here are some more stats on Saskatchewan's main crops.

Saskatchewan's share of world export markets 2019:

51% Lentils	26% Mustard Seed	21% Canola Seed
31% Peas	19% Canola Meal	31% Oats
35% Durum Wheat	19% Flaxseed	70% Canary Seed

What kind of machines do we use for harvesting crops like wheat, lentils, and canola?

A few different machines are essential for harvesting these crops as efficiently as possible, but the most important ones are combines and tractors. A combine harvester or simply combine gets its name from the three processes it "combines" into a single machine. These processes are reaping, threshing, and winnowing.

Reaping: Cutting or gathering the crop from the field. This is accomplished by the header, which is the wide rotating piece at the front of the combine.

The header cuts the crop by forcing the plants into a blade then moves them further into the combine using a conveyor belt.

Threshing: Threshing means to separate the grain from the rest of the plant. A long time ago this would have been done using a flail which was basically a piece of wood attached to a long handle. Farmers would hit the plants they collected with the flail over and over to knock the grains loose. In a combine this process is done by rotating drums which spin the harvested crop around and beat it to release the grains from the stalks (the rest of the plant).

Winnowing: Once the grains are detached from the stalk they need to be separated for storage. This process is called winnowing. Here the grains and stalks pass over a shaking grate where the grains fall through, and the stalks continue out the back of the combine.