

Innovation in Agriculture

Then & Now



What is

Agriculture?



ag·ri·cul·ture

noun \ˈa-gri-,kəl-cher\

Dictionary Definition:

- The science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products.

In Simpler Terms:

- Everything involved with growing plants and animals to be used for something else.



Where is STEM in Agriculture?

Science - Technology
Engineering - Math



Farm Machines

Long Ago & Today



What would this gadget do?



It's a planter!

- Seeds would be placed in the box and dropped into the furrow as the handles are pushed together.
- The tip at the bottom opens as the handles are pushed together to create a better pocket for the seed.



Modern equivalent?



Planter

- Modern planters are pulled behind tractors, and have large tanks to store seed.
- The wheels and disks at the bottom of the planter help create a furrow for the seed and cover the seed back up.



What is this used for?



It's a garden hoe!

- People have been using tools like these to cultivate their seed beds for a long time.
- Garden hoes can break down soil clumps, dig rows for planting, cover seed, and remove weeds from the seed bed.



Modern equivalent?



Field Cultivator

- Today, farmers pull tillage equipment like field cultivators behind their tractor to prepare the seedbed for planting or to kill unwanted weeds in their field.
- The cultivator pictured has V-shaped sweeps. Why do you think that is?



What is this tool?



It's a corn-husking glove!

- When corn was picked by hand, this made it easier to pick the ear and husk it in one motion!
- When used correctly, the hook in the center of the glove could tear the husks off the corn and pick the ear from the stalk. Then, the cob would be thrown in the wagon behind the worker.



Modern equivalent?



Combine

- Today, the combine takes care of many harvesting jobs.
- The combine will *cut* down the stalks, *pick* the ear from the stalk, *husk* the corn, and *shell* the corn, before dispensing it into a wagon nearby.
- Combines can harvest up to 18 rows at once, and drive about 3-4 miles per hour.



How would farmers use this?



It's a corn knife!

- This broad knife helped farmers cut corn stalks down.
- Though many corn knives had straight blades like this one, others may have had curves.
- Think about how different shaped blades helped farmers do different things. Why is that?



Modern equivalent?



Combine

- Today, farmers can use a combine to harvest, as well as cut down the remaining corn stalks.
- In the lower photo, you can see the head of the combine more closely. The corn stalks would be fed in between those fingers, and cut before being fed into the machine.

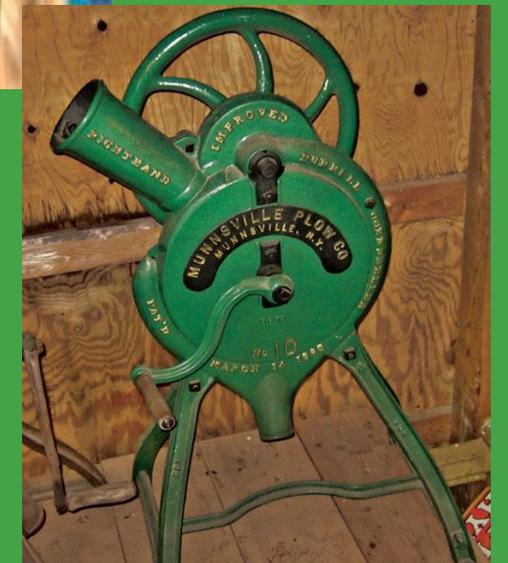


What would this machine do?



It's a corn sheller!

- Shelling corn (or picking the kernels off the cob) is hard work! This machine would take the kernels off the cob with ease!
- Though there were many types of corn shellers, hand crank styles were popular.
- What do you think is inside the cone that helps the kernels fall off?

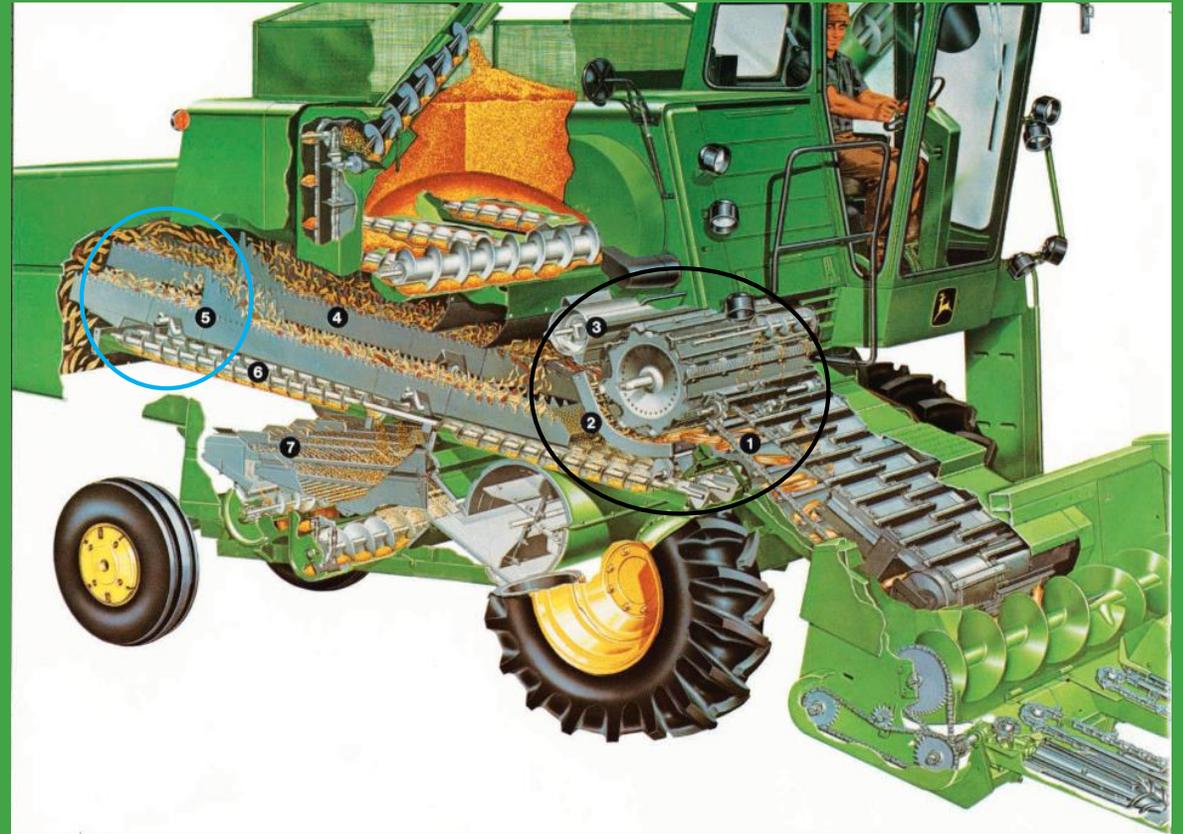


Modern equivalent?



Combine

- In this photo you can see where the husks and kernels are removed from the cob, and how they are sorted out.
- What benefits are there to putting the husks and cobs back onto the field (#5)?



What does this tool do?



It's an antique corn dryer!

- In order to store grain for long periods of time, drying it has been a common practice for a long time.
- This tool would hold ears of corn and allow them to dry.
- For larger amounts of corn, producers also used **corn cribs**, which were large huts with plenty of holes so the grain could dry on the cob.



Modern equivalent?



Mechanical Grain Dryer

- Today, grain dryers will be used to dry corn kernels after they are off the cob.
- Grain dryers will generally push air through the bottom of the bin, and use augers to push dry grain to the top, allowing wet grain to reach the airflow at the bottom.



Summary

Antique tools

- Hand planter
- Garden hoe
- Corn husking glove
- Corn knife
- Corn sheller
- Corn dryer

Modern tools

- Mechanical planter
- Field cultivator
- Combine harvester
- Mechanical grain dryer

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