



PADDY HARVESTING MACHINE



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Paddy harvester machine is a combination of a few major agricultural operations. These operations are cutting the crop, threshing, separation & cleaning. There are 3 different technologies or types in which combines are made - Straw walker, TAF & Hybrid.

MAIN COMPONENTS

- Cutter bar
- Feeder
- Spreader
- Engine
- Grain tank
- Thresher

CONSTRUCTIONAL DETAILS

The basic operation of a combine harvester is to recover the seed, free from any kind of plant residue, with minimum seed loss. The 4 major operations performed by a harvester are:

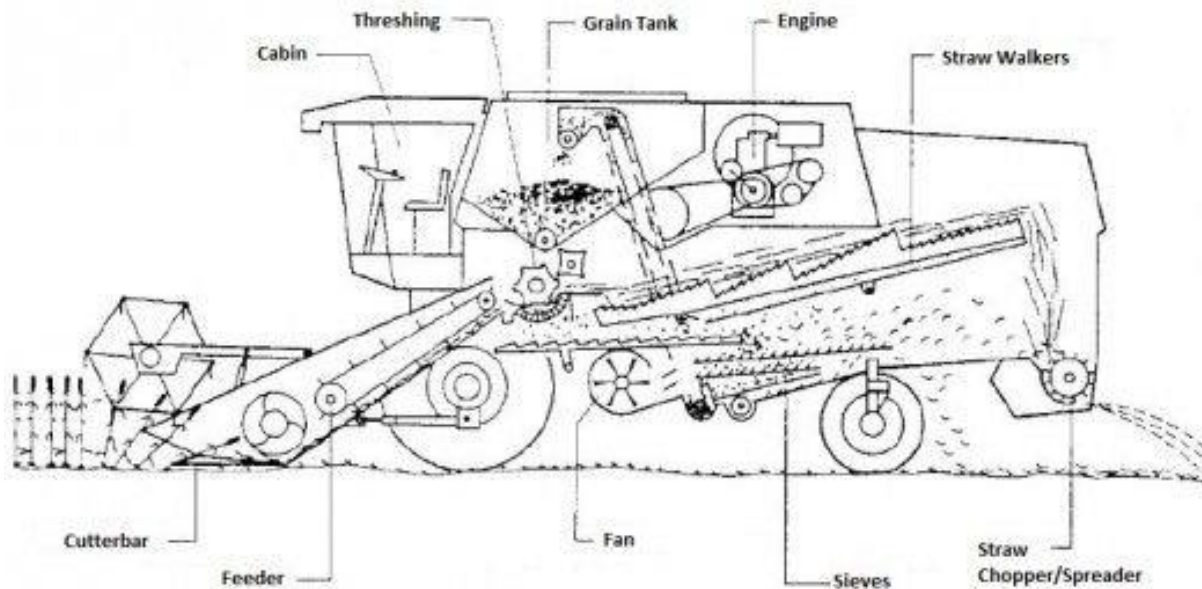
1. Cutting/Windrowing- Cutting the crop from the windrow and conveying it to the threshing mechanism.
2. Threshing - Detaching the seed from the plant.
3. Separation - Separating the seed and chaff from the straw.
4. Cleaning - Cleaning chaff, dust and other unwanted material from the seed.

It have removable headers at the front. There are different designs of these cutter bars depending upon crops. The cutter bar cuts the crop and the spring-tined reel takes it to intake auger. The intake auger takes the crop to feeder housing which further carries it to threshing system through chain type elevator. Through feeder housing the crop moves to the threshing mechanism. The 2 main components of the threshing mechanism are the threshing drum and concave. The design of drum and concave vary from crop to crop. The crop passes through cylinder and concave and most of the grain and chaff gets separated from straw. The grain falls



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through the concave to cleaning system and straw, being larger and lighter, moves to rear towards straw walkers.



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Two very important factors that play a very important role in having a good threshing efficiency are:

- 1. Drum speed** - Optimum drum speed is very important for good threshing.
- 2. Cylinder-Concave Clearance** - The distance between Threshing drum and concave plays a very important role in having a better efficiency.



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Less clearance may lead to grain breakage and more clearance may lead to higher number of unthreshed grains.

Next comes the straw walkers. The straw and some of the grain moves to straw walkers. Due to the shaking effect, the grain moves down to the cleaning system through the trough at the bottom of the walkers and the straw moves out of the machine through rear. The up-down and front-rear motion of the walkers is achieved through the front and the rear crankshaft. The Length and angle of walkers are very important for efficient separation.

Mixture of grain and chaff falls at the preparing floor through concave and walkers. The reciprocating motion of the floor brings the heavier particles (grains) to the bottom and lighter particles (chaff, dust etc.) to top. These lighter particles are blown off by the blower. Blower speed is to be optimally adjusted. If the speed will be less then the unwanted material will not blow out of the machine and if it is high then it will blow the grain out of the machine. The grain then falls to the set of sieves from where the threshed grain moves to grain tank and unthreshed grain goes back to the threshing mechanism through return elevator. Sieves contain sets of fingers. The angle of fingers can be adjusted to change clearance between them. This decides the size of material that can pass through them. Once the grain tank is filled, the operator can take all the grain out through the Unloading system.

ADVANTAGES

- Reduces man power
- Provide quality work
- Less time consumption