

Classification of Tractor

On the basis of structural design

1. Wheel type
2. Crawler type (chain /track type)
3. Walking type (Power tiller)
 - Inflation pressure of rear wheel of tractor – 0.8- 1.5 kg/cm².
 - Inflation pressure of front wheel of tractor – 1.5 – 2.5 kg/cm².
 - Highest tractor production in india

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1. **Wheel tractor:** Tractors having three or four pneumatic wheels are called wheel tractors. Four wheel tractors are popular everywhere.



2. **Crawler tractor:** This type is also called Track type tractor or Chain type tractor. In such tractors, there is endless chain or track in place of pneumatic wheels.





3. Power tiller:

- Power tiller is a walking type tractor.
- This tractor is usually fitted with two to four wheels.
- The direction of travel and its controls for field operation is performed by the operator, walking behind the tractor.



Classification of wheel tractors:

On the basis of purpose, Wheeled tractors are classified into three groups:

A. General purpose tractor:

It is used for major farm operations such as ploughing, sowing, harvesting and transporting works. Such tractors have low ground clearance, Increased engine power, good adhesion and, wide tyres

B. Row crop tractors:

It is used for row crop cultivation. Such tractor is provided with replaceable driving wheels of different tread widths. It has high ground clearance to save damage of crops. Wide wheel track can be adjusted to suit inter row distance.

C. Special purpose tractor:

It is used for definite jobs like cotton fields, marshy lands, hill sides, garden etc. special designs are there for special purpose tractor. Eg.

1. Tractor with winch unit
2. Multi drive tractor
3. Tractor for golf grounds etc.



On the basis of available power:

- Small tractors: 15-25 hp
- Medium tractors: 25-45 hp
- Large tractors: more than 45 hp

Total production of tractors in India-

20-30 hp -25 %

31 to 40 hp 60 %

41 to above - 15 %

- Internal combustion of suitable horse power is used as a prime mover in a tractor. Engines ranging from 8 to 200hp are used in agricultural tractors.
- In India, four-wheel tractors for agricultural operations are fitted with 25-80 hp. Walking type tractors are fitted with 8-12 hp engines.
- Power takes off- As per ASAE standards PTO speed is 540±10 rpm when operating under load. In order to operate 1000 rpm PTO drive machine, a new standard has been developed.

Selection of tractor:

1) Land holding:

- Under mono cropping / single cropping pattern it is recommended to consider 1 hp for every 2 ha of land, like for 40 ha of land a tractor should be 20 – 25 hp.
- Where more than 1 crop is taken in year, it is recommended to consider 1hp for every 1.5 ha of land. Like a 40 ha of land require 30 – 35 hp tractor

2) Cropping pattern: Generally, 1.5 hectare/hp has been recommended where adequate irrigation facilities are available and more than one crop is taken. So a 30-35 hp tractor is suitable for 40 hectare of land.

3) Soil condition: A tractor with less wheel base, higher ground clearance and low overall weight may work successfully in lighter soils but will not be able to give sufficient depth in black cotton soils.

4) Climatic condition: For very hot zone and desert area, air cooled engines are preferred over water cooled engines. Similarly, for higher altitude air cooled engines are preferred because water cooled engines are liable to be frozen at high altitudes.

5) Repair facilities: It should be ensured that the tractor to be purchased has a dealer at nearby place with all the technical skills for repair and maintenance of the machine.

6) Running cost: Tractors with less specific fuel consumption should be preferred over others so that the running cost may be less.



- 7) **Initial cost and resale value:** While keeping the resale value in mind, the initial cost should not be very high, otherwise higher amount of interest have to be paid.

Important Terms Related to Tractors:

1. **Wheel Base:** Wheel base is the horizontal distance between the front and rear wheels tractor.
2. **Ground clearance:** It is the height of the lowest point of the tractor from the ground surface tractor being loaded to its permissible weight.
3. **Track:** Track is the distance between the two wheels of the tractor on the same measured at the ground contact.
4. **Turning Space:** It is the diameter of the smallest circle, described by the outer most point tractor, while moving at a speed not exceeding 3km/hr. with three steer wheels in full lock.
5. **Cage wheels:** It is a wheel or an attached to a wheel with spaced cross bars for important traction of the tractor in a wet field It is generally used in paddy field.

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