



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**

**COIMBATORE-35.**



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

## **DEPARTMENT OF AUTOMOBILE ENGINEERING**

### **COURSE NAME : 19AUE308 - SPECIAL VEHICLES**

**III YEAR /VI SEMESTER**

**Unit 3- Agricultural Vehicles**

**Topic : Power Tillers**



# CONTENT



- Introduction
- Need for Power Tiller
- Components
- Construction & Working
- Advantages & Disadvantages
- Applications
- Manufacturing Companies



# INTRODUCTION



- Power Tiller is a prime mover in which the direction of travel and its control for field operation is performed by the operator walking behind it.
- It is also known as Hand tractor or walking type tractor.
- The concept of power tiller came in the world in the year 1920.
- Japan is the first country to use power tiller on large scale.





# NEED FOR POWER TILLERS



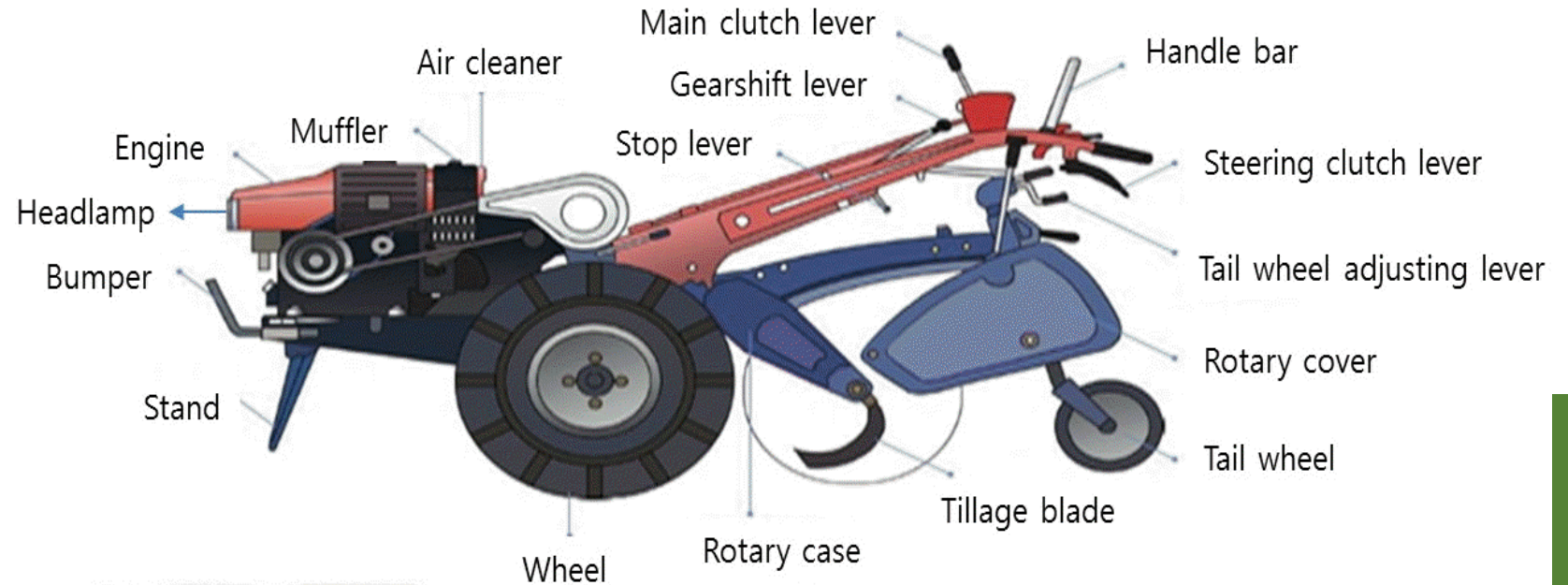
- Tractors have provided a major impact in the field of Agriculture.
- It makes the job of the farmer more easier.
- But, buying tractors by all farmer is quite difficult.
- The cost of tractor is high.
- In order to overcome this, power tillers have been used.
- It is small in size but it can do all work which the tractor does.





# COMPONENTS

- Engine
- Transmission gears
- Clutch
  - ❖ Main Clutch
  - ❖ Steering Clutch
- Brakes
- Rotary unit





# CONSTRUCTION



- Power goes from engine to main clutch through V- belt – pulley arrangement.
- Transmission gears consists of gears, shafts, and bearings.
- Transmission gears reduce speed of the engine and increase the torque at the wheels.
- Power tillers have braking arrangement for stopping the movement of power tiller.

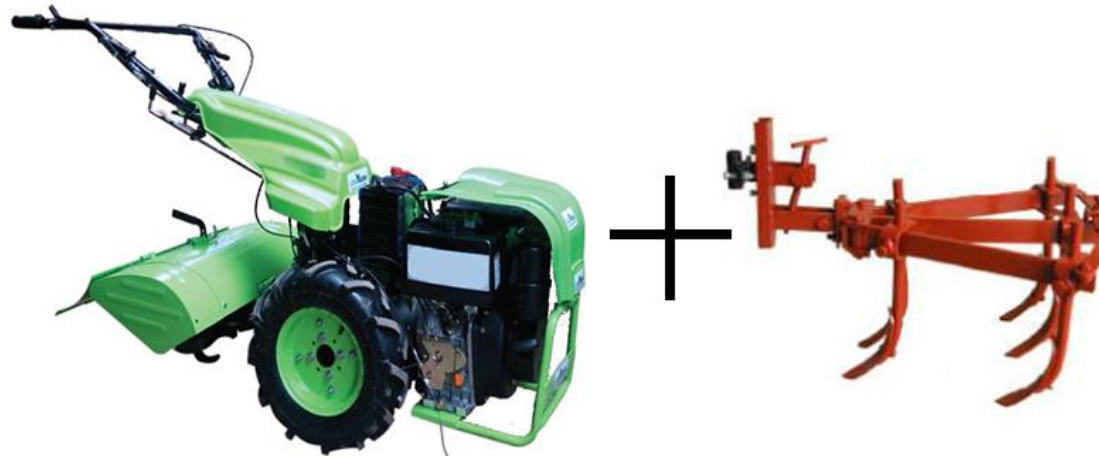




# CONSTRUCTION



- Power tillers have a rotary unit for field operation.
- Rotary tines are used in rotary unit for soil cutting and pulverizing purposes.
- Rotary tines are of three types
  - Straight tines
  - Curved tines
  - L shape blades





# WORKING PRINCIPLE







# ADVANTAGES



- Compact size.
- Low cost compared to tractors.
- Easily Portable.





# DISADVANTAGES



- Requires proper maintenance.
- Working time for field cultivation is more compared to tractors.
- Improper operating can lead to life loss.





# APPLICATION

- For puddling operation in paddy fields- using rotary tines
- For cutting and pulverizing the soil in dry lands and in garden lands
- For cutting and pulverizing the stubbles of sugarcane, maize and cotton
- For sowing and inter-cultivation works
- For spraying of orchard trees
- For transporting purposes



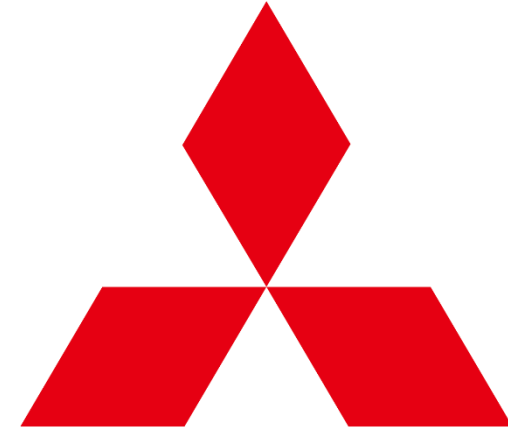


# MANUFACTURING COMPANIES



- Kubota
- Mitsubishi
- Mahindra
- Yanmar
- Satoh
- Iseki

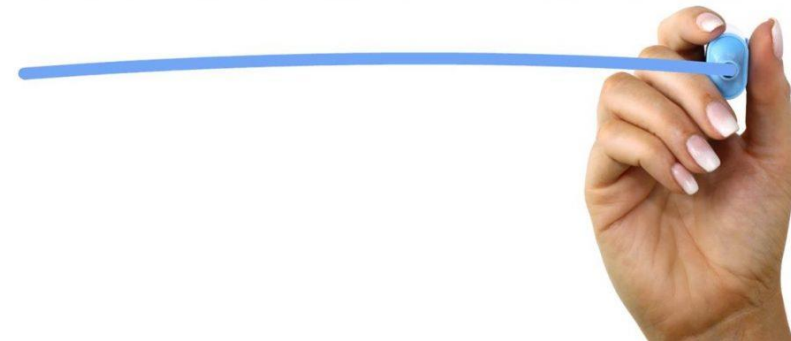
Kubota





1. Mention the driver position while driving tillers.
2. Compare tractors with power tillers.
3. What is the cost of Power tillers?

ASSESSMENT





## REFERENCE



- ❖ <https://en.wikipedia.org/wiki/Cultivator>
- ❖ <https://www.youtube.com/watch?v=SAVSVazfmcE>



**THANK YOU !!!**