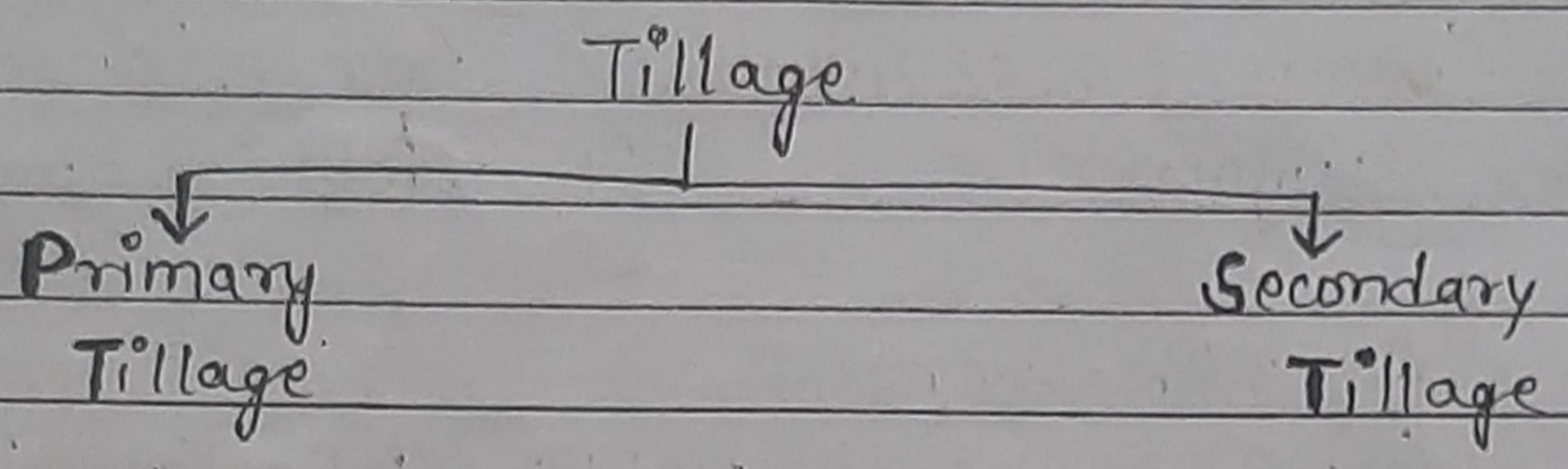


# TILLAGE

\* Tillage: It is a physical manipulation of the soil with tools and the tilling of land for the cultivation of the crop.

OR

Tillage is a manipulation of soil with tools and implements for loosing the surface crust & bringing about condition favourable for the germination of seed & the growth of plant.



1) Primary Tillage: The 1<sup>st</sup> time ploughing of the field or tillage operation should be done before sowing of seed is called primary Tillage.

\* Primary Tillage includes :-

- Ploughing of the field
- Leveling of the field
- clouiding (to break big soil)
- Bending
- Mixing of manure & fertiliser
- Sowing of seed
- Preparat<sup>n</sup> of Nursery / seed bed.
- Crushing of hard surface before germination.

\* Implements for primary tillage: (or equipments)

- (1) M.B. plough (Mold Board) (3). Lohan i
- (2) Direct plough



2) Secondary Tillage: The tillage operation should be done after sowing of seed to before harvesting of crop.

\* It includes:

- Weeding / interculture operation
- Earthing up
- Light ploughing of standing crop with cultivator or harrow & hoe. → preparation of camel for tea

\* Implements:

Imiqi & Dzuu.

- Cultivator
- Harrow
- Hoe
- Spade
- country plough

# Ploughing in different season:

(1) Summer ploughing:

- Ploughing Time: April to June
- Implements: Punjab hal, Victory Hal (Plough), disc ~~disc~~ plough, UPN-1

(2) Rainy ploughing:

- Ploughing Time: July to sept.
- Implements: MB plough, Indegenous / country plough, cultivator.

\* Singh Patela is used in high grass area.



### 3) Winter season Ploughing :

- Time : Sept. to Oct.
- Implement : Country Plough , cultivator.

### # Land Levelling Equipments :

- 1) Patella
- 2) Singh Patella (Given by Santh Bahadur Singh)
  - Working Efficiency : 1.5 to 2 ha/day
  - Consist of 8 - 10 spikes 1 tine
- 3) Roller
- 4) Leveling Karha
- 5) Scraper (wt : 33 - 50 kg)

### Classification of tillage implements

Primary  
tillage  
implements

Secondary  
tillage  
implements

#### Primary Tillage Implements

1. MB plough
2. Disk plough
3. Roller (Baelan)
4. Patella

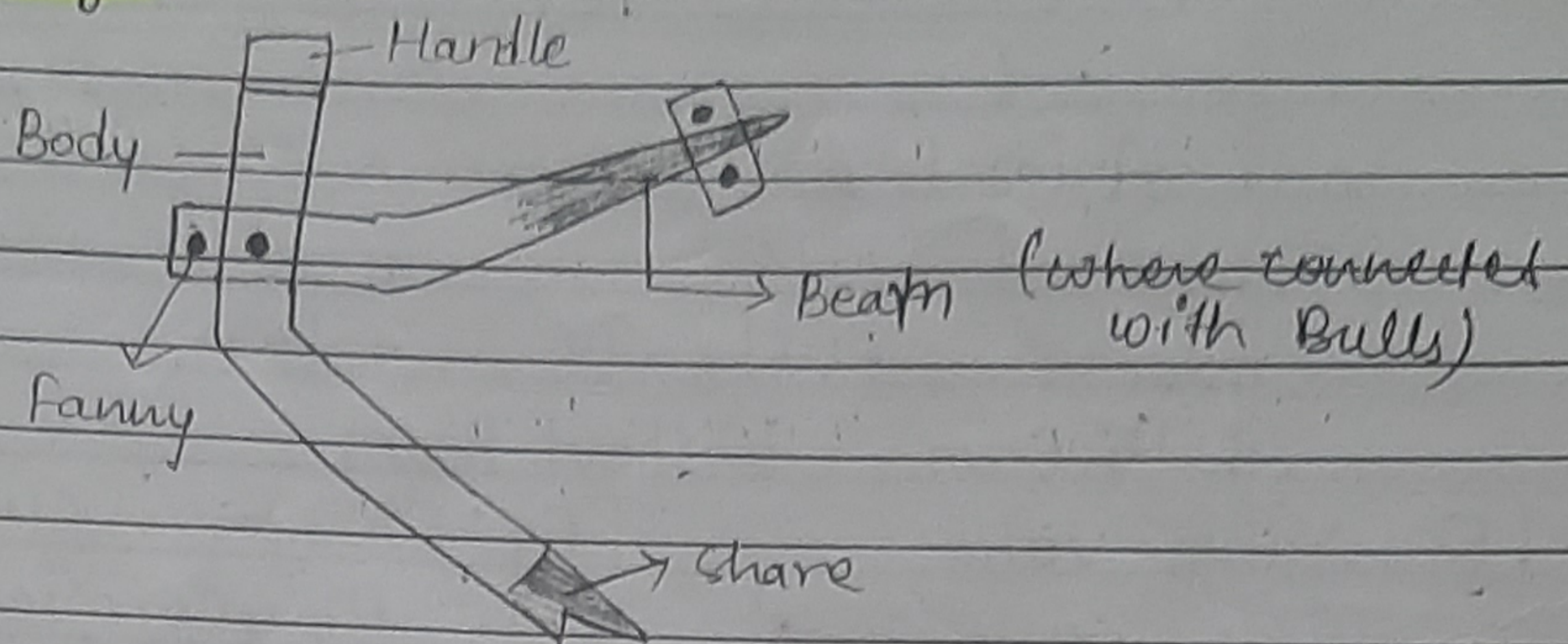
#### Secondary Tillage Implements

1. Indeginious / Country plough
2. Cultivator
3. Harrow
4. Hoe
5. Khurpi
6. Spade



## \* Classification of tillage implements :

### (1) Desi plough :



- It is multipurpose plough.
- Also used for mixing of fertiliser.
- Weight = 15 kgs.
- Pulling force of Indegenous plough = 80 kg.
- Desi / Indegenous / country plough make 10-15 cm V-shape furrow.
- When the farmer plough the field of 1 acer with the desi plough, then they walk upto 64 km.
- Working eff. :- 0.4 ha / day or 1 acer  
 $1 \text{ ha} = 2.47 \text{ acer}$      $1 \text{ acer} = 0.4 \text{ ha}$

Uses: Ploughing, mixing of manure, sowing of seed, weeding, Beushening

- (2) Cultivator: In comparision to Desi plough, cultivator works 3 time more working efficiency.



# Cultivator

Animal drawn

Tractor Drawn

With Beam

Without Beam

[Eg: Vaha - vaha  
Junior cultivator  
& vaha - vaha  
senior cultivator]

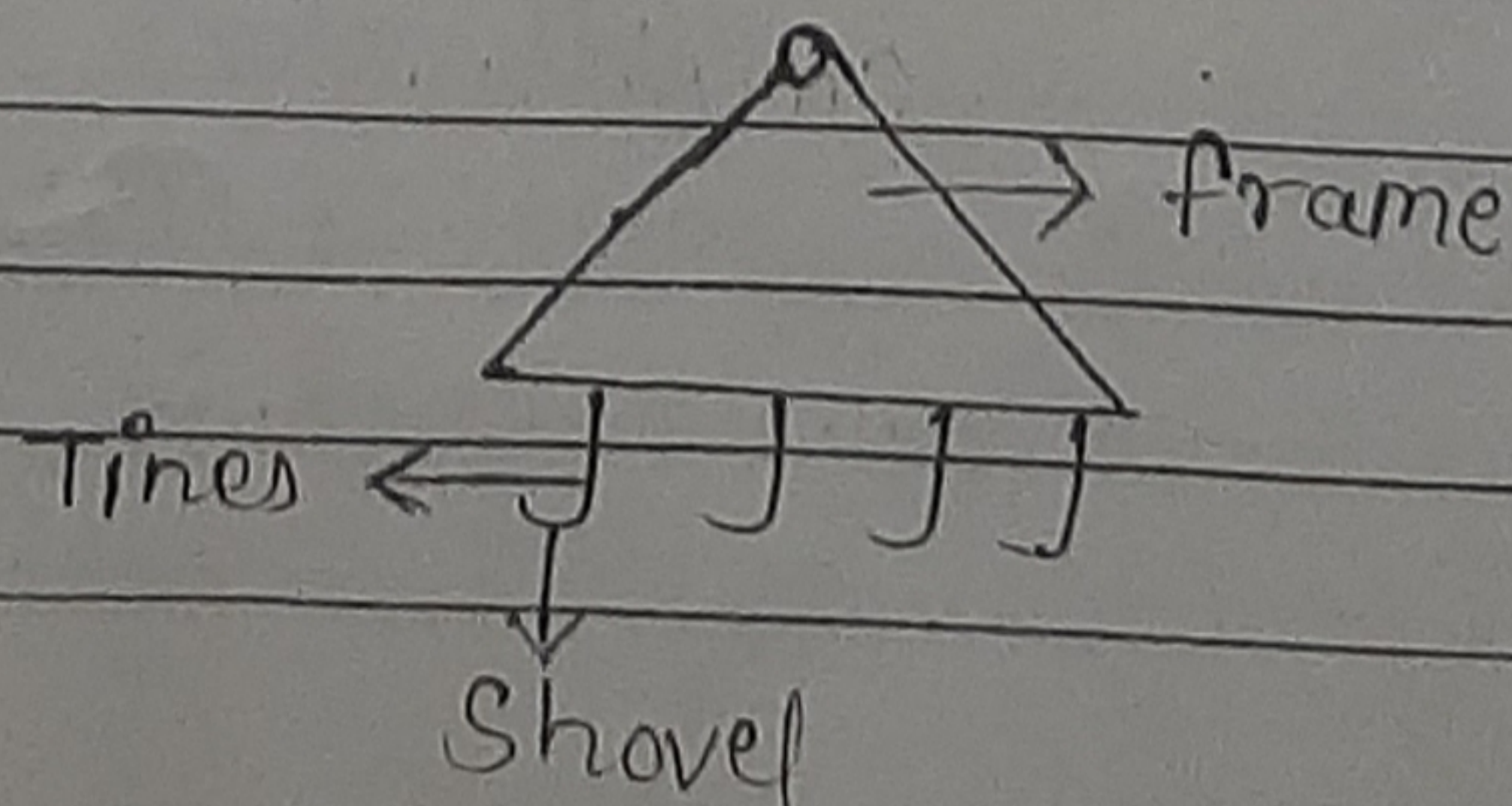
[Eg: Kanpur cultivator,  
Maycormic cultivator]

## Working / Uses of cultivator:

- Secondary tillage
- **Clouiding**
- To make soil freeable
- Interculture operation
- Earthing up of soil
- Mixing of manure
- Weeding
- Bunding of field (झं)
- Creating of small canals
- Digging of Potato

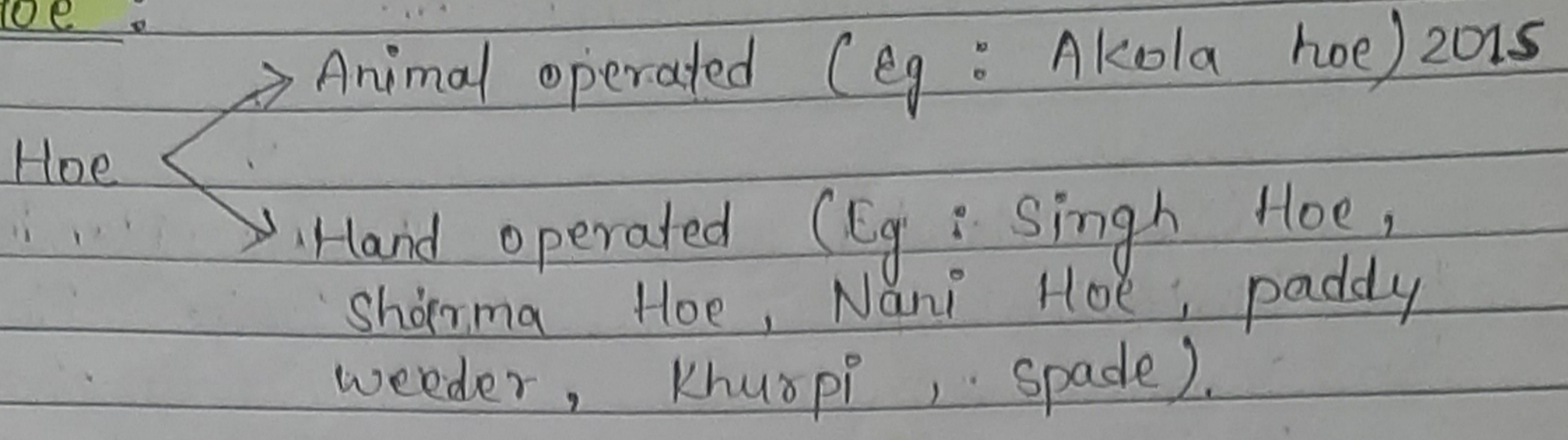
## Parts of cultivator:

- Frames
- Tines (spikes)
- Shovel / Share

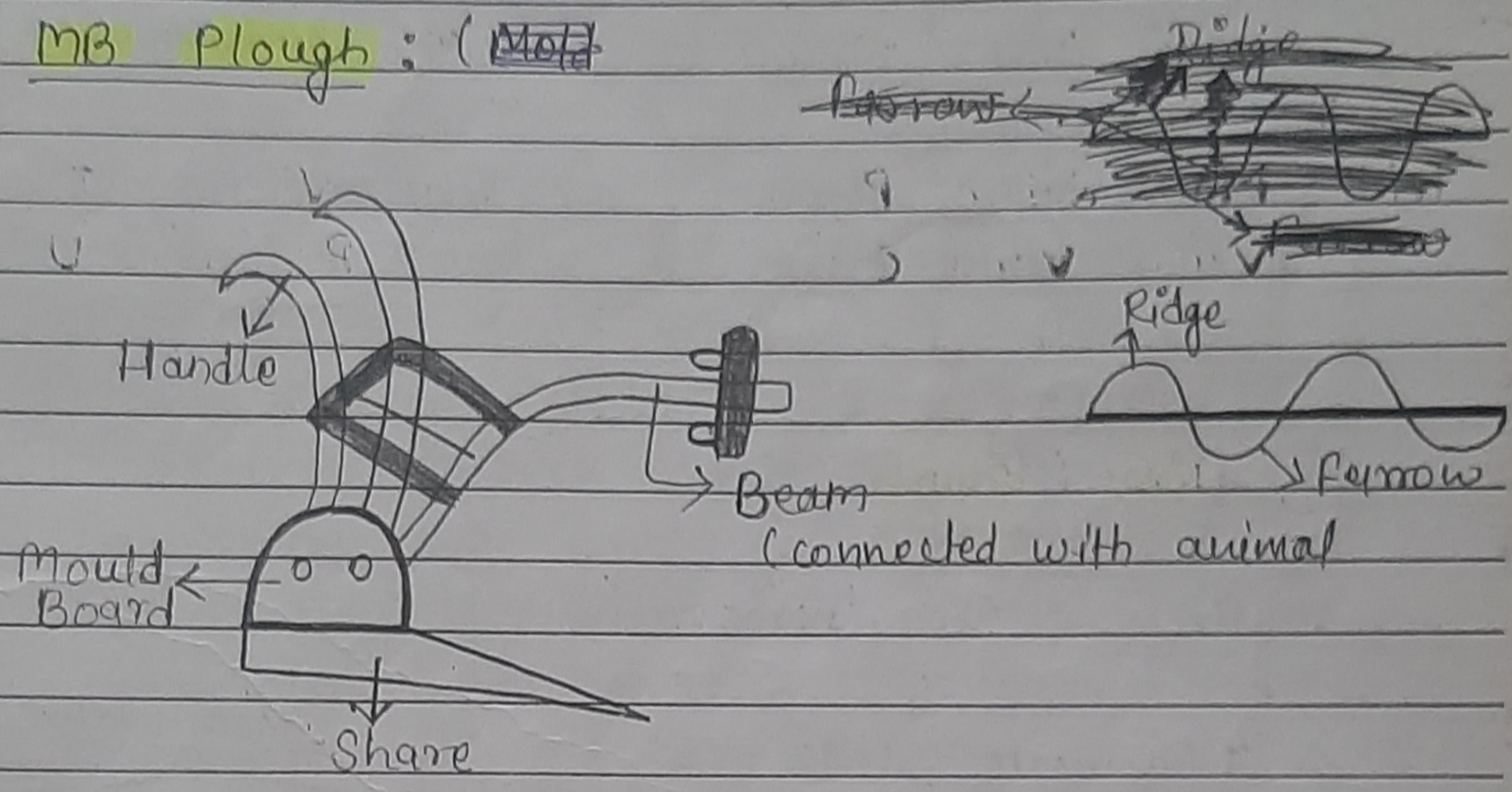




(3) Hoe :



(4) MB Plough :



Uses

- Incorporate / turning of green manuring crop in a soil.
- To break the hard barren soil / surface.
- For the formation of furrow / canals in sugarcane crop.
- Working eff. = 0.33 ha / hr.
- MB plough create L-shaped furrow.
- Main use = to mold the soil.



## MB Plough XX

### Single Handed

- Eg 1. Meston plough  
 2. Shabbash plough  
 3. Praja plough  
 4. Vaha - vaha plough  
 5. Care plough

### Double Handed

- Eg 1). Punjab Plough  
 2). Victory plough  
 3). Turnrest plough  
 4). UPNI - 1

Trick: Mam Sahab Praja  
Vaha - vaha Care  
Rahi h

Trick: Victory Turner  
Punjab se UP gaya

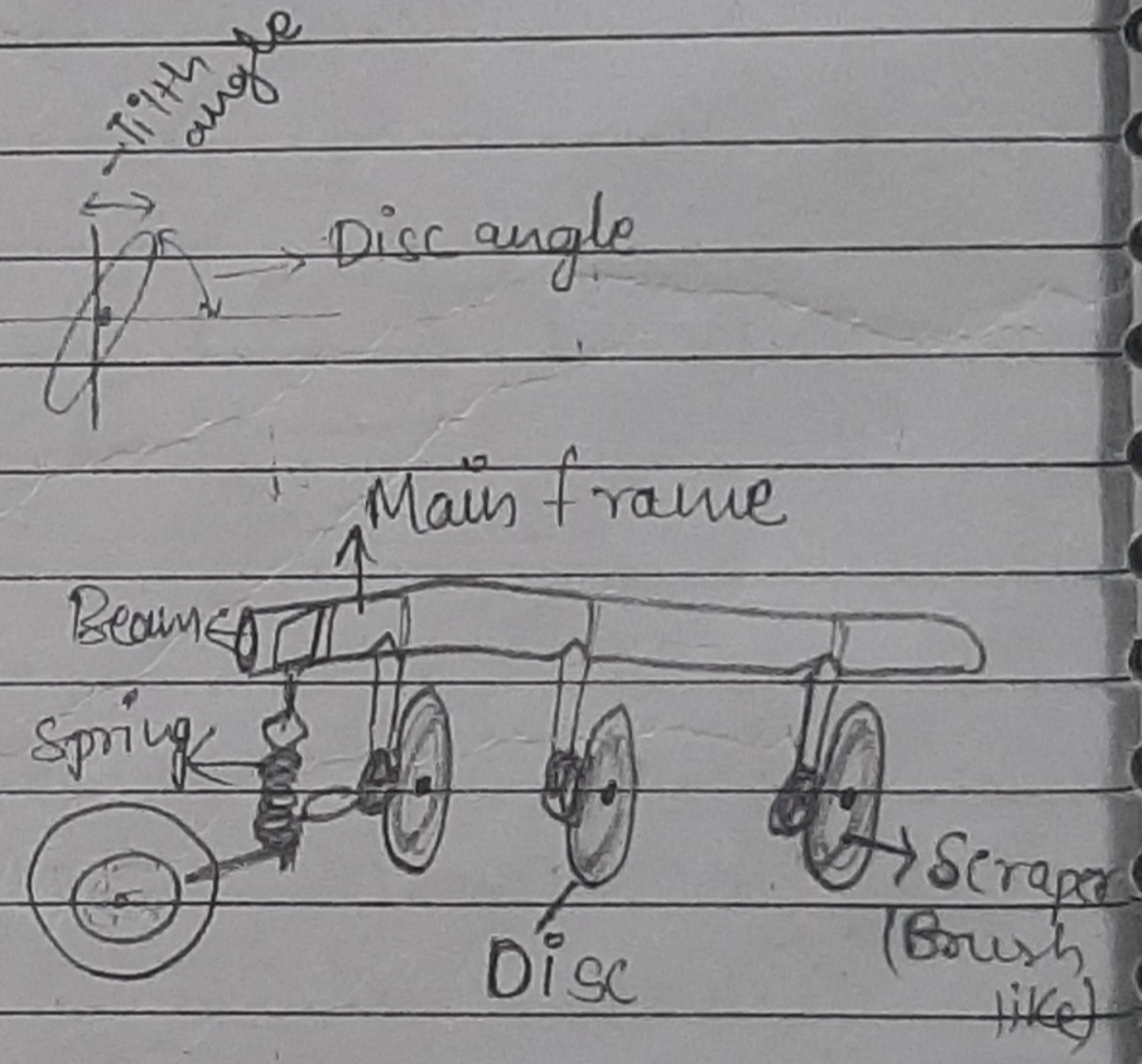
## ⑤ Disc Plough

# Parts : Disc (main part)

# Disc angle : 40 - 45°

# Tilth angle : 15 - 25°

# Work efficiency : 0.8 ha/hr



## # Modern concept of Tillage :

1) Zero tillage : It is also called no tillage.

→ It is extreme form of minimum tillage.

→ Primary tillage is completely avoided.



→ Secondary tillage is restricted seed bed preparation in a root zone.

2) **Minimum Tillage**: Tillage operation is done for minimum ploughing such as seed bed prep<sup>n</sup>, weed control this is called minimum tillage.  
→ Hoe, weeding, Herbicides used for minimum tillage.

### Objective:

- Proper aeration for gaseous exchange.
- Mixing of manure & fertilizer.
- Removing of hard surface.
- Removing of stubble (a kind of weed)
- To destroy insect & pest.
- To make top soil friable
- Increasing water holding capacity
- control soil erosion
- Conservation of soil water
- Improve soil structure and maintain soil temperature
- To improve the drainage capacity.

