



*Business Mind Social Heart*

**MART** Global Management  
Solutions LLP

# MECHANIZATION POTENTIAL : HILL FARMING

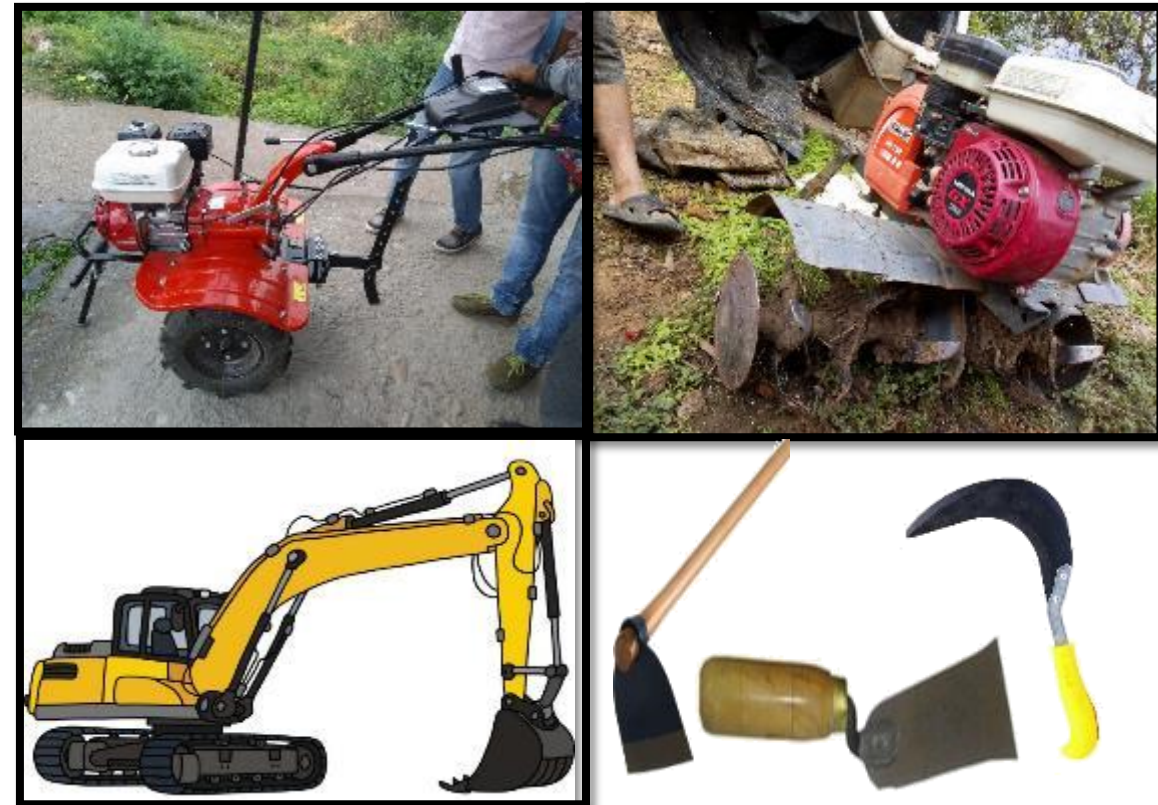
BREAKING THE BARRIERS OF  
TRACTORIZATION IN HILL FARMING

# TYPICAL MECHANIZATION ON HILLS

## Current Topology of Hills



## Current Available Mechanization



# 01

## **OBSERVATION**

---

UNDERSTANDING THE REASONS  
FOR LIMITED MECHANIZATION

# 01

## CULTIVATION IN TERRACE/ STEP FIELD

### Uneven Steps

Uneven steps leads to difficulty in farming.

### Difficult irrigation

Controlled irrigation is tough task

### land slide

Heavy rain fall leads to land slide.



### Bringing to Field

Taking tiller from home to farm requires 3-4 people

### Difficult Machine Movement

Taking tiller from one step to other is difficult task

### Difficult operation

Turning tiller on narrow step is difficult.

# 02

## CULTIVATION IN SLOPE FIELD

### STEEP SLOPES

No power tiller/other machine is used due to steep slopes (30-40 degree).

### DIFFICULT MACHINE CONTRAOL

Due to steep slope controlling of machine is difficult, While climbing weight comes on hands

### MORE RISK IN SLOPE OPERATIONS

While working in slope tiller required more attention as it start moving backwards due to slope & cuts the legs

### ROCKS & TREE ROOTS

Tillage is not possible ( Tiller blades gets broken)



# 03

## CULTIVATION IN PLANE FIELD

### DIFFICULT TO OPERATE

Due hard & rocky soil farming is very difficult-

### NO PASSAGE

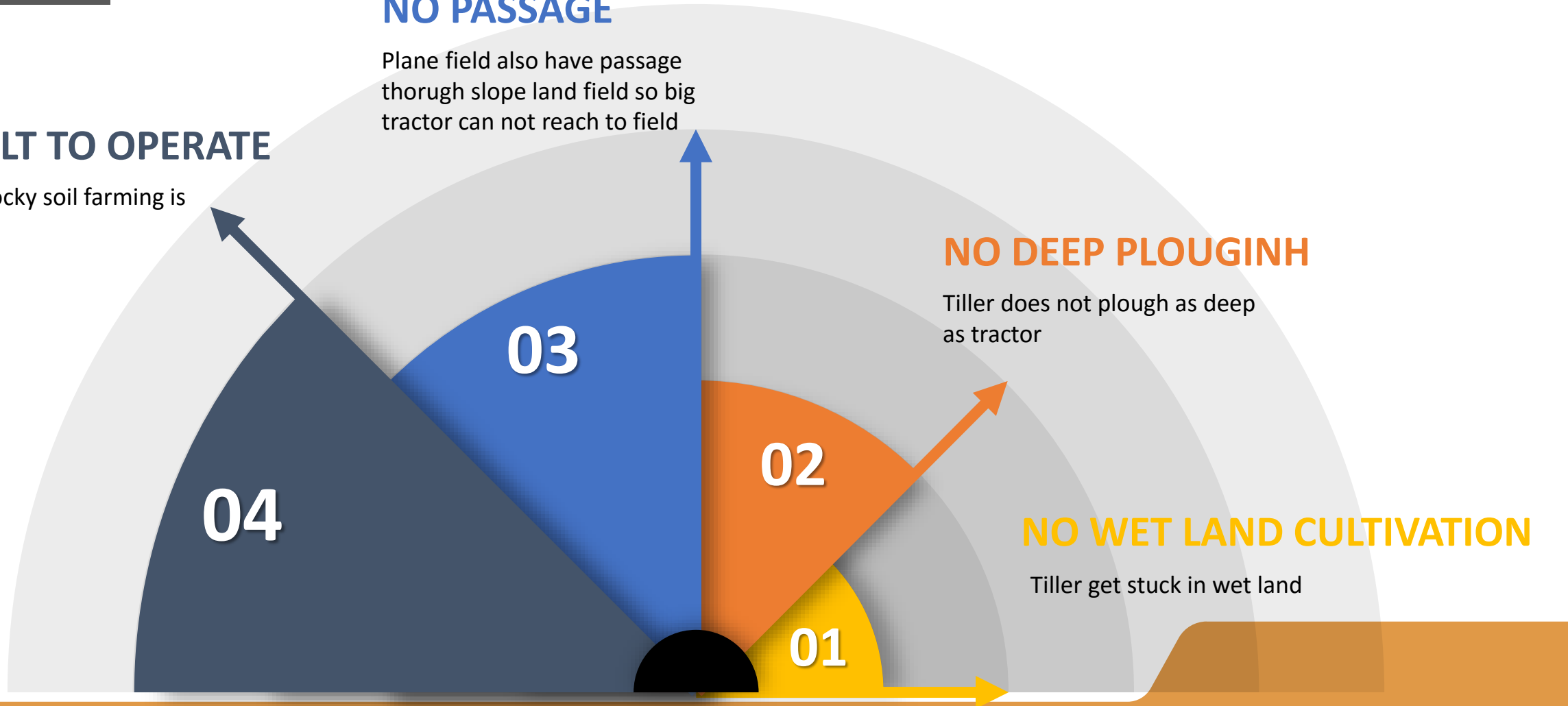
Plane field also have passage through slope land field so big tractor can not reach to field

### NO DEEP PLOUGINH

Tiller does not plough as deep as tractor

### NO WET LAND CULTIVATION

Tiller get stuck in wet land



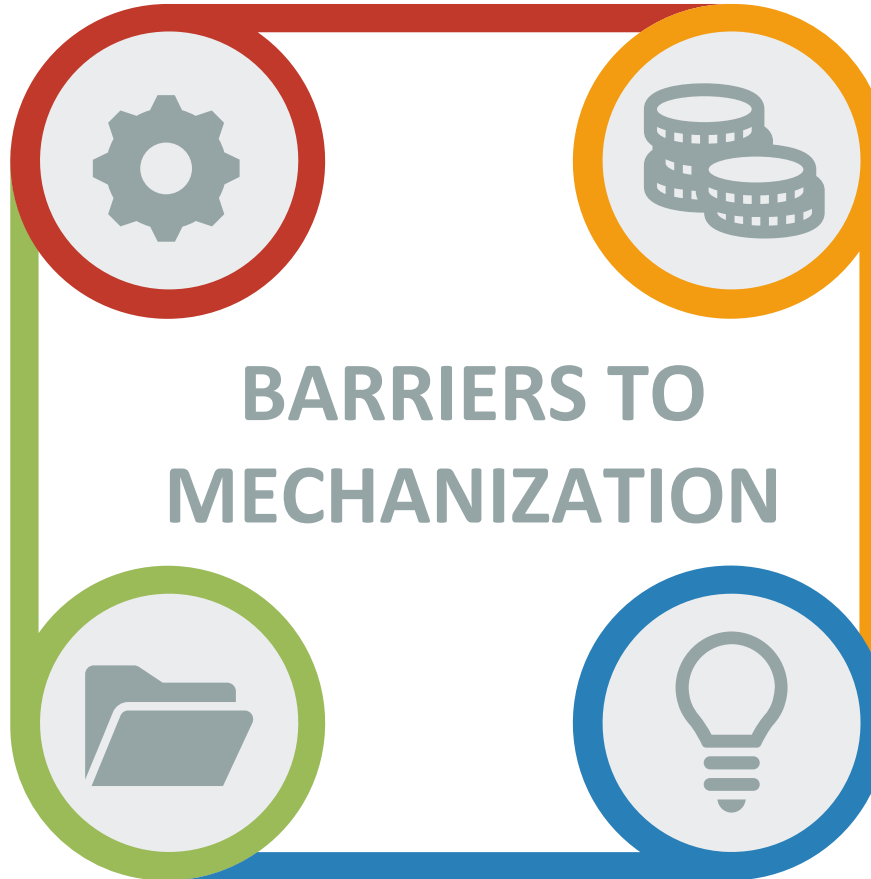
# BARRIERS TO MECHANIZATION IN HILLS

## Lack of Skilled Manpower

For any new machine, trained man-power is required to operate and it will lead extra burden on farmers

## Availability of cheap labor

For agriculture, farmer easily get labor at affordable cost and pay them in staggered manner which is not in case of machine



## Upfront cost of Machine

To purchase a machine (Tiller), farmer have to pay an upfront price & beingsmall farmers they can do such a big investment

## Limited utilization of machine

As in hill maximum farmer takes only 2 crops in year, this lead limited utilization of machinses (5-7 days in each crop)

# RESEARCH OUTCOME - IDEAL MACHINE



## TRACK WHEEL WITH IRON CHAIN

To work on steep slopes  
Track wheel required.



## LESS WIDTH

Width should be less (2-4 ft for ease in inter cropping work)



## LIGHT WEIGHT

For better usability  
weight should be approx. 60-80kg



## LOW TURNING RADIUS

Could turn in 1.5-2 ft narrow space



## LOW HEIGHT

2-3 ft (able to move smoothly inside coffee / orchard plants)



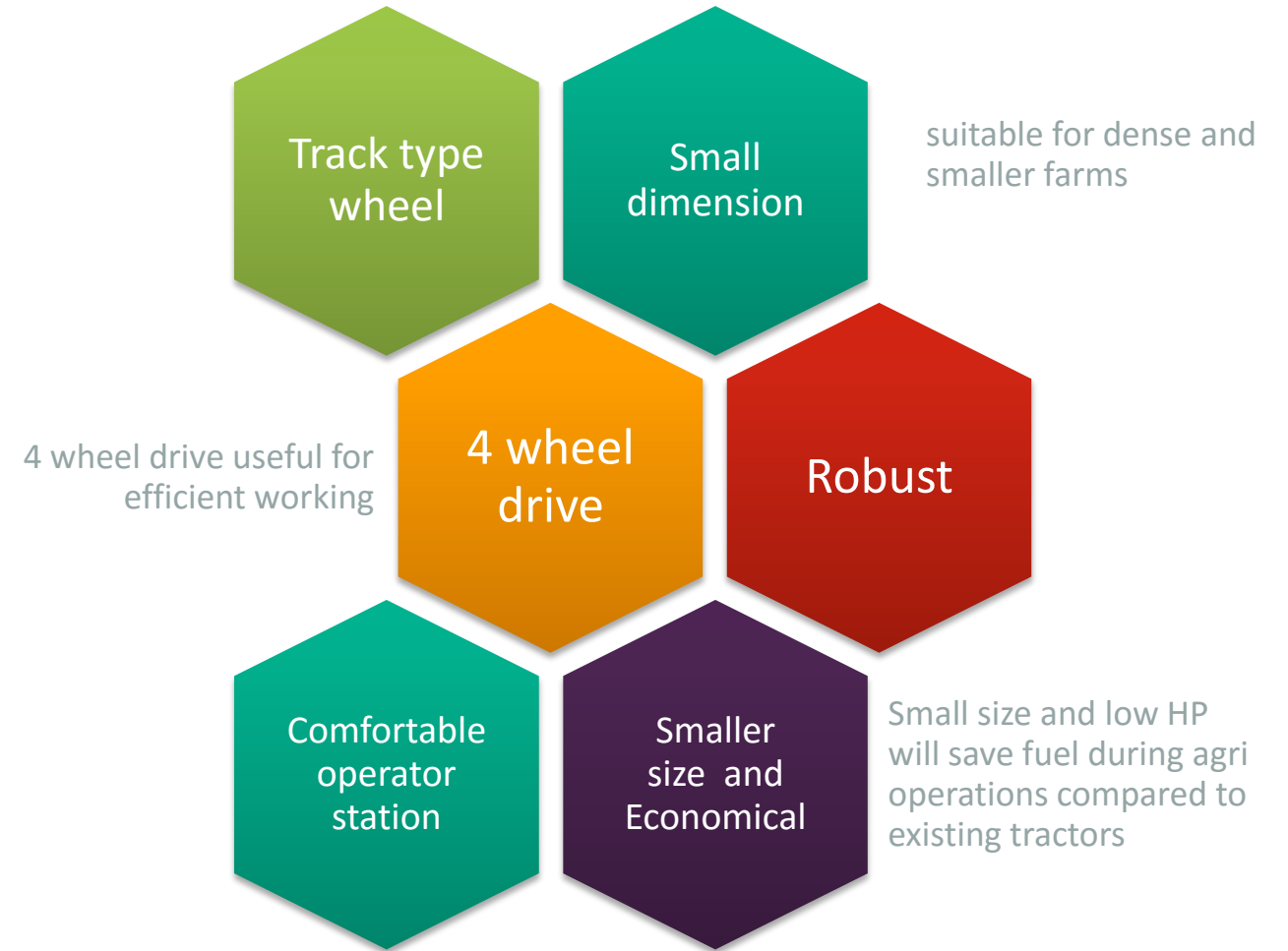
## POWER

10-14 HP : For deeper ploughing & ease in puddling operation &  
Fuel Consumption should not be more 1-1.5 lt / hr





# FINAL OUTCOME – MACHINE TESTED



# SUCCESS STORY

01

**Track** - Better grip on slopes and steps due to larger surface area coverage & broader track.

02

**Tyre lugs**- extremely helpful in avoiding slippage during upward movement.

03

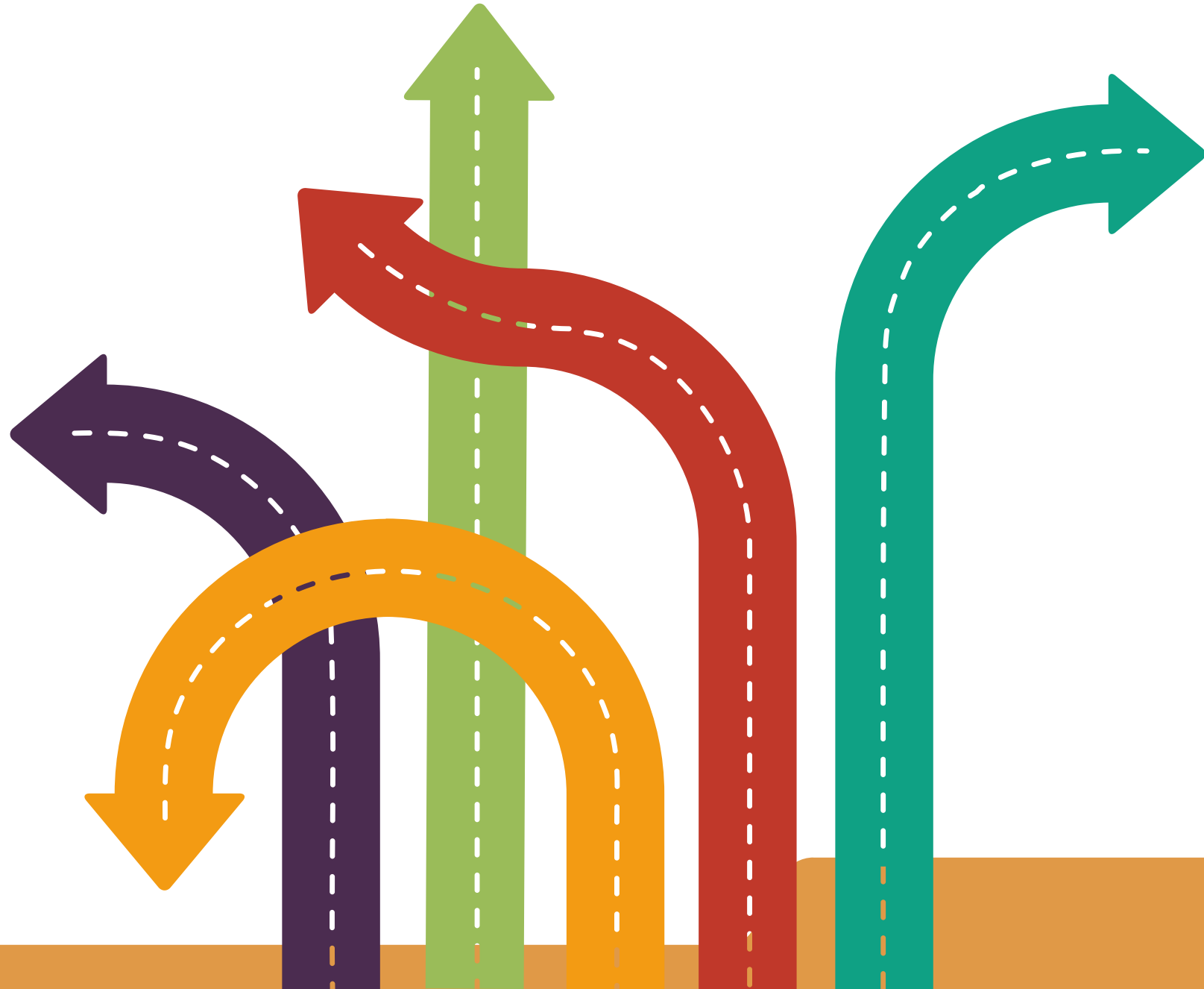
**Light weight** - provides more efficiency & Less slippage

04

**Higher Power** – 26 HP with 4 wheel drive makes User friendly along with smooth controls

05

**Suitable for both agri & non agri operations** ( tillage,, weeding, irrigation, spraying , haulage- Can run on fields as well as roads)



**T**HANK **Y**OU!