

## “MANUAL OPEATED SPRAY PUMP & SEED PLANTER”

**Lokare P.P. Sawant S.D. Shelake A.N. Survase G.B.**

*Deptment of Mechanical (Poly), SVERI's College Of Engineering, Pandharpur*

### Need:

1. It is necessary to provide the advanced machines and mechanisms as agriculture is the most important source ofeconomy in India.
2. To provide an alternative option for farmers due to lack of workers.
3. To reduce primary cost.
4. To develop a mechanism which reduces fatigue of labours?

### Objective of project:

1. The main objective is to mechanize seeding & spraying process.
2. To seeding effectively & easily.
3. To reduce the effort applied.

### Components of Model:

Sr.No	Components	Material	Qty.
1	Wheel	Spoken	3
2	Handle	Cast iron	2
3	Pump	Fiber	1
4	Disc	Mild steel	1
5	Hopper	Cast iron	1
6	Plough	Mild steel	1



### Working principle:

#### Spray pump:

1. Spray pump require frequent pumping to maintain constant pressure. As the mechanism used for pumping is simple.
2. It converts rotary motion of wheels into reciprocating motion for pumping. This is only possible due to eccentric connection of pump rod with big sprocket.
3. As we move the machine forward, pumping action starts & pressure is build up in pump & Then spraying started.

#### Seed planter

for operation of the planter, a person pushes it with handle attached to machine. The holes are drilled on the circumference of the disk.

2. The function of the hole is to collect the seeds from the hopper and transport it to seed tube. Varying the number of holes on circular plate can vary plant spacing .the distance between two plant can adjusted by fixing the hole on seed metering disk .

3. When the machine moves in forward direction the grains in seed box come inside the seed metering disk due to rotarymotion of disk finally seed enter in the seed tube and then actually planted area at specific distance

**Figure1: WorkingModel**



**Figure 2 Slotted wheel**

**Advantages**

- Simple design and low fabrication cost
- Reduces labour and overall cost of seeding .
- no need of any fuel or extra energy.
- The machine is multipurpose i.e. can be
- used for either spraying or sowing seeds & fertilizers.
- Reduce efforts of labours

**Disadvantages**

- it is not applicable for double row.
- used for only small farm.

**Mathematical analysis**

Angle bet n. Each slot. = 30 0

Diameter of Wheel d= 14.7 cm.

Circumference=  $3.14 * 14.7 = 46.16$  cm