

Farm Machinery used for fertilizing and pest control

Sprayer

A sprayer is a device used to apply herbicides, pesticides, and fertilizers to farm crops. Sprayers range in size from man-portable units typical spray-powered backpacks to tractor-related self-propelled units. The Sprayer is one which atomises the spray fluid (which may be a suspension, an emulsion or a solution) into a small droplets and eject it with little force for distributing it properly.

Types of sprayers

- Depending on the source of power it can be classified as manually operated and power operated dusters.

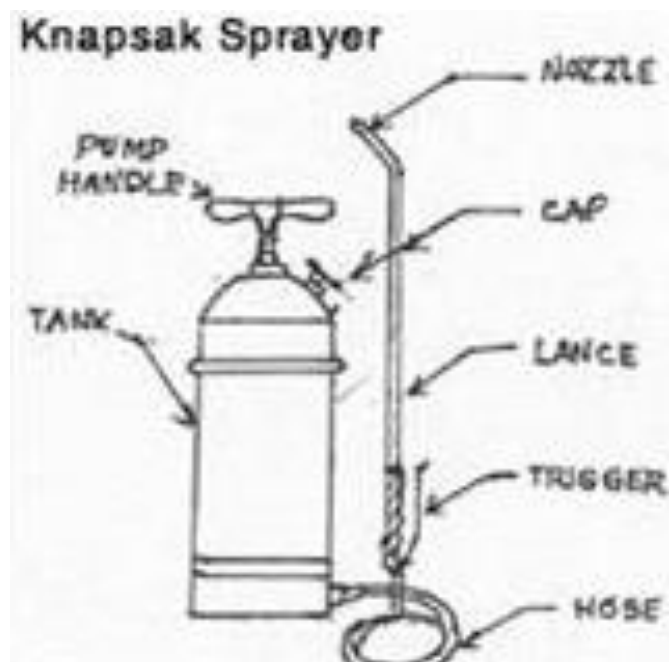
1. Hand sprayer

- The hand sprayer is a small, light and compact unit.
- The capacity of the container varies from 500 to 1000 ml.
- This is generally used for spraying small areas like kitchen garden and experimental laboratory plots.



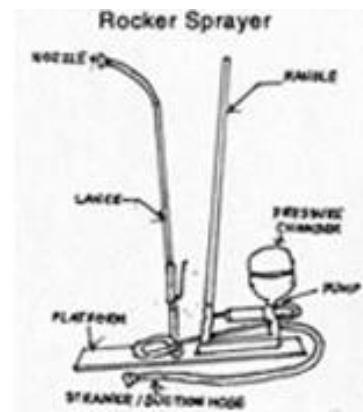
2. Knapsack sprayer

- sprayer which is carried on the back of the operator is called a knapsack sprayer.
- The commonly used manually operated knapsack sprayer will have
- one hydraulic pump working inside the container.
- The plunger works inside the replacement well attached at the bottom of the container
- for easier maintenance.
- The pump can be operated through the appropriate linkages by oscillating the handle,
- with the sprayer carried on the back.
- An agitator is also provided with the pressure chamber to agitate the fluid so that
- the particles in suspension will not be allowed to settle down.



3. Rocker sprayer

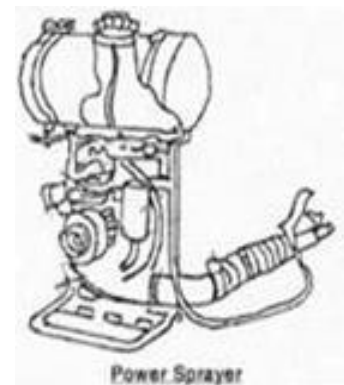
- The rocking sprayer has a pump assembly, fixed on a wooden platform with an operating lever, a valve assembly with two ball valves, a pressure chamber, suction hose with strainer, and delivery hose with spray lance
- When the plunger is pulled behind by pulling the lever way from the pump, the spray fluid from the container is sucked through the strainer and pushes the bottom ball valve above and enters the pump.
- When the lever is pushed towards the pump, the sucked fluid is forced to enter the pressure chamber by opening the upper ball valve
- Usually 14 to 18 kg/cm² pressure can be built in the pressure chamber and hence can be conveniently used for free spraying



4. Power sprayer

- All the sprayers which impart the mechanical energy developed by an I.C. Engine, on the spray fluid before spraying is called as a power sprayer.
- The most commonly used type of power sprayer in India is a gaseous energy type knapsack sprayer.
- In construction, it has a back pack stand on which a blower with a S.I.

- Engine of 1.2 to 3 hp capacity, the spray fluid tank and the petrol tank are fixed rigidly.
- An air current of 2.7 to 9.1 m² / minute is delivered at a velocity of 175 to 320 kmph.
- The spray fluid tank capacity varies from 7 to 12 litres.
- The fuel tank capacity varies from 0.75 to 2.25 litres.



Maintenance in sprayers

1. Drain off any liquid still in the tank.
2. Add 1 kg of washing soda per 45 litres of water, which will serve as a cleaning detergent. Spray this liquid through the nozzle on waste land.
3. Add fresh water in the tank and spray with and then without nozzle on the waste land.
4. Wash the outside of the sprayer. Remove the nozzle and filters and store safely after cleaning.
5. Ensure the absence of water in the pump and lubricate the parts