



# **SNS COLLEGE OF TECHNOLOGY**

## **AN AUTONOMOUS INSTITUTION**

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**DEPARTMENT OF AGRICULTURAL ENGINEERING**

**COURSE CODE & NAME: 19AGO301 & FARM MECHANISATION**

**III YEAR / VI SEMESTER**

**UNIT : IV Harvesting and Plant Protection Machinery**

**TOPIC 2 – Crop Protection Equipment**





# INTRODUCTION

- ✓ Pests and disease incident on the crops / plants are to be overcome by the application of poisonous chemicals.
- ✓ As the technology advances and newer crop varieties are introduced newer insects, pests and diseases are also growing up and methods are devised to control them.
- ✓ Many chemicals used for plant protection cannot be handled by human operators directly.
- ✓ Also, that needs to be applied in fine particles. This necessitates the use of suitable machines.



## Sprayers

- ✓ 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.
- ✓ It also regulates the amount of pesticide to avoid excessive application that might prove wasteful or harmful.
- ✓ The mechanical appliances that are used for distributing the dust formulations of pesticides are called as dusters.



## Types of sprayers

Sprayers are classified into four categories on the basis of energy employed to atomise and eject the spray fluid as

- ✓ Hydraulic energy sprayer
- ✓ Gaseous energy sprayer
- ✓ Centrifugal energy sprayer and,
- ✓ Kinetic energy sprayer



## Hydraulic energy sprayer

- ✓ Hydraulic Energy Sprayer is one which the spray fluid is pressurised either directly by using a positive displacement pump or by using an air pump to build the air pressure above the spray fluid in the air tight container.
- ✓ The pressurized fluid is then forced through the spray lance, which controls the spray quantity and pattern.



## **Gaseous energy sprayer**

✓ In Gaseous Energy Sprayer high velocity air stream is generated by a blower and directed through a pipe at the end of which the spray fluid will be allowed to trickle by the action of gravity through a diffuser plate.

## **Centrifugal energy sprayer**

In the Centrifugal Energy Sprayer the spray fluid fed under low pressure at the centre of a high speed rotating device (Such as flat, concave or convex disc a wiremesh cage or bucket, a perforate sieve or cylinder or a brush) is atomised by centrifugal force as it leaves the periphery of the atomiser. The droplets are carried by the air stream generated by the blower of the sprayer or by the prevailing wind, if the sprayer is not provided with a fan.

## **Kinetic energy sprayer**

In Kinetic Energy Sprayer the spray fluid flows by gravity to a vibrating or oscillating nozzle which produces a coarse fan shaped spray pattern. This is used for application of herbicides.





# Thank You