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# EXPERIMENT 14 PREPARATION OF SPRAY SOLUTION OF INSECTICIDE AND ITS APPLICATION METHOD

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## Structure

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## 14.1 INTRODUCTION

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You all know that, the pests also cause sufficient damage to the mulberry crop. In order to control, different methods are followed. Among all methods, chemical control is employed often to control the pests. Therefore, it becomes important to know the type of chemical to be chosen, the quantity of commercial formulation of insecticide to be purchased (based on area of mulberry garden), its concentration, the quantity of spray solution to be prepared per unit area of garden, methods of application, etc.

### Objectives

After studying and performing this experiment, you should be able to:

- prepare the required quantity of the recommended concentration of the insecticide solution for applying;
- demonstrate the method of application of spray solutions to control different pests of mulberry; and
- calculate the level of incidence of pests in treated and control groups.

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## 14.2 EXPERIMENT

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### 14.2.1 Principle

Cultural operation plays an important role in controlling the pests. Care should be taken to see that the recommended pesticide, its concentration and method and time of application are followed in order to achieve pest suppression. Following application of insecticide on mulberry, the pest receives the insecticide load by diffusion through body integument or by entry through food. As a result, the metabolic activities of the pest get hampered leading to its death.

## 14.2.2 Requirements

- Pest attacked mulberry garden
- Insecticide (commercial grade)
- Sprayer
- Water
- Measuring cylinder
- Buckets
- Hand gloves
- Mask
- Gumboot
- Water pot

## 14.2.3 Procedure

### a) Requirement of Spraying Solution (insecticide) for One Acre of Garden

- Required insecticide spray solution: 180 litres
- Required concentration (%): 0.076 (leaf roller and wingless grass hopper), 0.15 (Bihar hairy caterpillar) and 0.2 (mealy bug)
- Required quantity of commercial insecticide formulation: 180 ml (leaf roller and wingless grass hopper), 360 ml (Bihar hairy caterpillar) and 473 ml (mealy bug).

### b) Preparation of Recommended Concentration of Spray Solution

- Add the required quantity of commercial insecticide to a small quantity of water and adjust the final volume of the spray solution to 180 litres by adding water.
- Stir the spray solution for uniform distribution of the insecticide in the diluent (water).
- Spray the insecticide solution using a sprayer till the leaves become wet.

*Note: The concentration of the insecticide, quantity, frequency of spraying of the insecticide depends on the seriousness of infestation of the pests to the mulberry garden.*

### c) Field Testing of Prepared Spray Solution

- Select a few plots with pest infestation.
- Spray the formulations as per recommendation, in few selected plots.
- Keep the few infested plots without spraying.
- Observe the difference after a given time and record the readings in the table.

### 14.2.4 Observations

Pest	Pest Incidence (%)		
	Control	Treated	Pest Suppression (%)
Leaf Roller			
Bihar Hairy Caterpillar			
Wingless Grasshopper			
Cutworm			

### 14.2.5 Results

% Pest suppression due to spraying of insecticide = \_\_\_\_\_%

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## 14.3 PRECAUTIONS

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- Do not allow children and persons having wounds to prepare and spray insecticide solution.
- Do not mix the insecticide by hand; use rod / stick for mixing.
- Do not spray insecticide solution without wearing protective devices.
- Do not allow the insecticide solution to run-off from the leaf.
- Do not spray the insecticide during hot hours of the day.
- Do not spray against the wind and during rainy days.
- Do not blow the nozzle with mouth to remove the clog, instead use the needle.
- Do not harvest leaves without observing the safe / waiting period.