

Pesticide Application

Introduction

Regardless of the potential efficacy of a pesticide against a target pest, its efficacy in the field or on the target will depend on the application technique used. Good application technique involves the proper mixing, dilution and application of pesticides. It is important that the quantity of pesticide needed to do the job is applied to the target area with a uniform distribution. In order to achieve this, the correct type of application equipment and correct nozzles must be selected, and the equipment properly tested and calibrated. Improper application techniques can result in too little or too much pesticide reaching the target, resulting in inadequate control in the former case and waste, phytotoxicity, pest resistance, environmental contamination and human health risks in the latter.

Application Equipment

Though several types of pesticide application equipment are available, application equipment basically consist of a tank for storage of pesticide solution, a hydraulic or air pump for propelling the liquid and a nozzle to break liquid into droplets. The application equipment chosen for a particular job should be influenced by the type of formulation, working conditions, the time of day or crop to be treated and specific problems in the area. The success or failure of your control programme will depend on an accurate dose from a well-calibrated equipment.

Different types of application equipment available are: Hydraulic sprayers*; Air blast sprayers*; Low pressure cone sprayers*; High pressure boom sprayers; ULV (ultra low volume) sprayers; Granule and bait applicators; Thermal foggers; Cold foggers; Fumigation applicators; Aerosol generators; Hand dusters; Power dusters; Fixed wing aircraft; Helicopters; Applicators for livestock. Equipment followed by an asterisk (*) are those most frequently used in Jamaica and will therefore be dealt with in detail.

Hydraulic sprayers

Compressed air sprayers

These are usually hand carried sprayers which operate under pressure. They are simple to handle, versatile and relatively inexpensive applicators, available in various sizes and made from a variety of materials. The tank containing the pesticide is pressurized by means of a self contained manual pump before spraying commences. Once spraying starts the pressure decreases rapidly and the operator may have to re-pressurize the tank before the tank is empty. Nozzles are interchangeable.

Advantages: Easy to use and inexpensive; Suited for small space jobs; Easy to clean and simple to repair

Disadvantages: Pesticides corrode steel parts and breakdown rubber; Poor cleaning results in rapid deterioration of equipment: Rapid fall in pressure results in changes in droplet size. 2