



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

TECHNIQUES IN PLANT PROTECTION MSH-304

LECTURE 09

A few simple plant protection techniques and equipment were developed at the National Institute of Plant Health Management, Rajendranagar, Hyderabad for adoption by small farmers in application of pesticides efficiently in order to protect their crops and stored food grains. The details of their design fabrication and use are explained below.

HAND SHAKE DUSTER: This is a simple device to apply pesticide dusts. This is useful in pesticide dust application in low height crops. The brown plant hopper is a serious pest in many parts of the paddy growing areas. This equipment is well suited for pesticide application for control of brown plant hopper in paddy crop. It consists of a metal container cylindrical in shape with 5½" diameter and 7" long. At its bottom, one convergent and divergent cones are fitted. The duster is provided with suitable handle on top with galvanized iron wire. The total length of the duster is 30". Sufficient number of perforations are made alround the container at its lower end and on the bottom case. The divergent cone which is inside the container helps to push quickly the dust through perforations. The bottom cone helps in keeping the duster away from the soil and water in the paddy fields. The dust hopper can contain about 2 kg dust. The dust is emitted by shaking the duster by hand, in twirling or up down jerk motion. Brown plant hoppers generally harbour at the lower portion of the paddy crop and hand rotary duster usually fails to apply the dust at the bottom of the crop. Hence, this device is very useful for the farmers. This is cheap and can be fabricated by local tinsmith. It costs about Rs. 100/- or so. A farmer can cover one acre of paddy in a day with the help of this duster. This could be utilised for other crops as well.

WET DUSTING EQUIPMENT FOR DRY LAND CROPS:

A low cost equipment for wet dusting on crops was devised. It is particularly suitable for dryland crops. The losses in dust application due to drift is minimised. Wet dusting is more effective and economical to farmer than mere dusting on crops. A small hand operated sprayer of two litres capacity is amounted on the lid of the shoulder mounted rotary duster. On the top of the duster's outlet, one spray nozzle was provided to issue water spray. The nozzle was

connected with a long hose pipe from the outlet of sprayer which is kept on the duster. In this process the dust particles becomes wet when released from the duster and also the leaves and other plant parts become wet and the dust depositing is improved. The operator of the duster carries the duster and sprayer combined. He operates the crank of the duster. The sprayer's trigger is made on with the help of latch and the spraying of water takes place continuously. Four kgs of dust needs two litres of water for the wet dusting operations effectively.

Plant Health Engineering Division, NIPHM Page 24 This equipment is more useful for dryland farmer when there is water scarcity always. The cost involved in conversion of the sprayer and duster for wet dusting cost to Rs. 100/- being the cost of plastic pipe and clamps etc. This equipment can be used for simultaneous spraying and dusting of two pesticides if they are compatible.