

APPROPRIATENESS OF EXISTING SPRAYERS AND APPLICATION METHODS OF LIQUID FORM AGROCHEMICALS

B.R.S.C. Dissanayake¹, M.H.J.P. Gunarathna¹, W.R.S.K. Dabarera² and P.D. Kahandage¹

¹Department of Agricultural Engineering and Soil Science, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka

²Unipower (Pvt) Ltd, Liberty Tower, No: 756B, Parliament Road, Palawatta, Battaramulla, Sri Lanka

High amount of spray losses and inconsistency in application are experienced due to lack or poor pressure regulating mechanism in commonly used knapsack sprayers in Sri Lanka. This study was conducted to evaluate the knowledge and attitudes among farmers on agrochemicals in liquid form and field performance of existing sprayers. Twenty five farmers having lever operated knapsack sprayers were selected using snow ball sampling method. Data on sprayers and application procedure were collected using a pre-tested questionnaire. Performance of each sprayer was tested by field evaluation test. All the data were analyzed by descriptive statistical procedures. Results revealed that none of the farmers were conscious about the proper using of sprayers and recommended chemical application practices. Despite of high risk of poisoning, no one wear recommended complete clothing while spraying due to various reasons including hot climatic conditions and inconvenient field conditions. There are various brands of sprayers and major brands are Hayspray (60%) and Osatu (20%). In spite of recommended working pressure for weedicide and insecticide applications are 2.0 and 3.0 bars respectively, sprayers showed wide range of maximum achievable pressure (1.8–3.1 bar). These results showed that 4% of sprayers are not suitable for both weedicide and insecticide applications, 72% are suitable only for weedicide application and only 24% are suitable for both weedicides and insecticide application. In addition to that, sprayers with the same brand name and model showed different maximum achievable pressures as well as various discharge rates under the same working pressure. This study concluded that calibration of sprayers at individual farmer level is compulsory to achieve effective application and regulating agrochemical usage. Since, pressure regulation plays a vital role in effective application, pressure regulators to be in-cooperated to the existing sprayers. A regulatory mechanism to be initiated to control the importation of improper machineries to the Sri Lanka. Further awareness and the training programs on the safe use of sprayers and agrochemicals application are indispensable for sustainable agriculture and protect farmers' health and environment.

Keywords: Agrochemicals, Insecticide, Lever-operated Knapsack, Pressure, Weedicide