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AN INVESTIGATION ON EFFICIENCY OF FOLIAR FERTILIZER APPLICATIONS IN CROP PRODUCTION

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Foliar applications of fertilizers have become increasingly popular in intensive crop production systems which require costly equipment and operation procedures. Hence, achievement of maximum possible benefits from applied nutrients is an important requirement. However, visual observations suggest that a considerable amount of applied nutrients over the foliar reaches the substratum/soil instead of retaining on the crop canopy for absorption. Thus, this study was conducted at an intensive foliage plant production unit in Sri Lanka to evaluate the real efficiency of routine foliar applications.

The fractions of applied foliar sprays reaching the substratum/soil were trapped at the base of the plants by using colourless toilette tissues. The fractions were trapped in two events with three replications under about 50% and 80% ground covers achieved by Red Edge (*Cordyline fruticosa*) and Sandriana Gold (*Dracaena sandriana*) respectively. Two weekly sprinkler irrigation issues were also monitored and canopy through-falls were quantified in the similar manner. The amounts of Nitrate, Ammonium, Phosphate and Potassium were determined as indicator ions, in spray solutions, irrigation water as well as in extracts of trapped sprays and through-falls.

The results showed that an average spray volume of 75 ml in Sandriana and 105 ml in Red Edge reached the ground out of an application of 200 ml m⁻². 55 - 90% of applied nutrients have reached the substratum. However, the range under 80% ground cover was 55-73% and under 50% was 65-90%. Canopy leachates of nutrients by sprinkler irrigation were considerably high whereby at some instances the amounts leached were more than those found in irrigation water.

It could be concluded that it is not suitable to term the procedure as a foliar application as the major fraction of nutrients will be added to the substratum. Hence it is appropriate to consider modifications for routine foliar applications of nutrients to increase the efficiency. It could be stated that ground applications of fertilizers would be adequate unless otherwise there are nutrient availability constraints in the substratum. Thus, it is wiser to practice foliar applications of nutrients only in situations of real need.

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