

**IMPROVED NEW FERTILIZER FORMULA FOR CULTIVATION OF  
HYDROPONIC TOMATO (*Lycopersicon esculentum*) AND SALAD  
CUCUMBER (*Cucumis sativus*)**

**K.P.A.M. Kariyawasam<sup>1</sup>, W.A.P. Weerakkody<sup>2</sup> and D.A.U.D. Devasinghe<sup>1</sup>**

<sup>1</sup>*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka*

<sup>2</sup>*Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka*

High cost of fertilizers is a major constraint of growing vegetables in protected culture in Sri Lanka. This study aims to assess the effect of New Fertilizer Formula (NFF) and its modifications on growth and yield of greenhouse tomato and salad cucumber. Experiment was laid out in a Complete Randomized Design with three replicates during January to June, 2014. Four treatments namely, NFF (T1), Albert's fertilizer (T2), NFF with improved macro nutrients ratio (T3) and improved macro ratio with separate micro nutrient mix in chelated form (T4) were used. Plant height; shoot, root dry weight; days to 50% flowering; total number of fruits/plant; total yield; weight, diameter, length and internal quality (pH, firmness, brix value) of fruits were measured. N, P, K content of the growing medium and plant tissues were assessed at reproductive stage. The plant height in salad cucumber was significant ( $p < 0.05$ ) at 3<sup>rd</sup> and 4<sup>th</sup> weeks after planting in T2. Root and shoot dry weights of 6.5 g/plant and 26.2 g/plant respectively, were significant in salad cucumber at 50% flowering in T4. Plant heights in tomato at 50% flowering were not significant. Root dry weight (3.85 g/plant) and shoot dry weight (29.29 g/plant) in tomato were significant at 50% flowering in T4. N, P, K analysis and yields of both crops were not significant ( $p > 0.05$ ). The highest brix value for salad cucumber was in T4 and it did not vary among treatments in tomato. The lowest cost of fertilizer formula was in T1 (Rs. 37/plant) followed by, T3 (Rs. 39/plant), T4 (Rs. 39/plant) and T2 (Rs. 62/plant). The study indicates that the fertilizer formulae in T1 and T4 for tomato and salad cucumber respectively, were cost effective while producing a comparable yield to T2 with desired quality.

**Keywords:** Cost analysis, New fertilizer formula, Salad cucumber, Tomato, Yield