

ABSTRACT

“Red Lady” is a popular hybrid papaya variety among the Sri Lankan papaya growers. There is a general fertilizer recommendation in the Department of Agriculture for all the papaya cultivars including variety Rathna. However, there is no fertilizer recommendation for papaya hybrid varieties in Sri Lanka yet. Therefore with the objective of development of an effective fertilizer formulation for hybrid papaya the present study was carried out in the dry zone of Sri Lanka at Embilipitiya from September 2014 to August 2015. Ten different fertilizer packages were applied as treatments. Recommended fertilizer NPK (RF) mixture by using Urea as a N source given by DOA (T₁), RF mixture with Cow dung (T₂), RF mixture with Borax and ZnSO₄ (T₃), RF mixture but N source Ca(NO₃)₂ + Borax and ZnSO₄ (T₄), RF mixture but N source Nitrobor + ZnSO₄ (T₅), RF mixture with Borax, ZnSO₄ and Cow dung (T₆), T₄ with Cow dung (T₇), T₅ with Cow dung (T₈), T₃ and T₄ alternatively used (T₉), T₃ and T₄ alternatively used with Cow dung (T₁₀). Treatments were laid according to Randomized Completely Block Design with three replications. Growth and yield parameters were recorded up to eight months after planting.

Treatments T₇ and T₈ were shown the same trend on plant height and T₈, T₉ showed the same trend on Stem girth. Fertilizer packages did not show significantly affects to number of leaves per plant and plant canopy width. The fruit yield per plant, fruit number per plant and the total yield per hectare showed significant difference ($P \leq 0.05$) in T₁₀ fertilizer package. It showed higher values than the others (Fruit yield/plant 17.870kg, fruit number 13fruits/plant and total yield 28.6mt/ha throughout the study period). Single fruit weight (1.787kg) was significantly higher in the T₄. The lowest cost of fertilizer for the treatment were showed in T₁ and T₃ (Rs.2.07/kg) in that period. T₂, T₆, T₉ and T₁₀ were statistically same with cost of fertilizer values (Rs/kg) are 6.03, 6.70, 7.64 and 8.37 respectively and Profit percentage of that treatments were predicted for a year. They are 151%, 122%, 98%, and 174% respectively. Among those treatments T₁₀ is selected as the best fertilizer package with considering highest percentage of profit.

From the overall studies, it was concluded that the best fertilizer package should be with balanced fertilizer mixture with NPK and micro nutrients Zn, B with cow dung Ca (NO₃)₂ and Urea should apply alternatively as nitrogen source to get higher profitable yield in papaya cultivation.