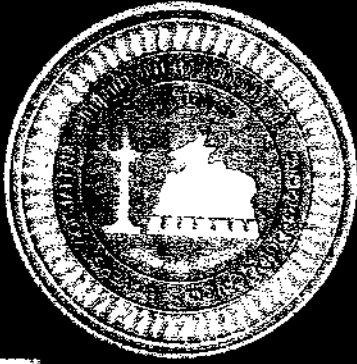


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# Crop performance of *Amaranthus* (Diyapalagoda accession) produced by reaping and regrowth system

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## ABSTRACT

This experiment was conducted at the Horticultural Crop Research and Development Institute (HORDI), Sri Lanka to study the growth and yield of amaranthus accession Diyapalagoda. In this experiment, seeds were obtained from main crop and ratoon crop and sown separately at a spacing of 15 cm within row and 30 cm between rows. The experiment was laid out in a Completely Randomized Design (CRD) with eight replications. Seedling and plant growths were measured at regular intervals and statistically analyzed. The present study revealed that plant performance was better in ratoon crop and there was significant differences ( $P < 0.05$ ) between plant yield. Yield of crop raised from ratoon was 48.20 tons/ha and it was high as compared to crop raised from main seeds. Other seedling and plant growth parameters were statistically similar between treatments. However, seedling and plant growth parameters were slightly high in plant produced from ratoon seeds compared to plant produced from main crop seeds. From this study it could be concluded that the high yield benefit can be obtained by plant produced from ratoon seeds of Diyapalagoda accession of amaranthus as an important leafy vegetable for human nutrition in Sri Lanka.

**Key words-** Amaranthus, plant growth, ratoon crop, seed, yield.

## 1. INTRODUCTION

Many plants have been considered beneficial in the diet. Especially leafy vegetables play a vital role in human daily diet as reported by many nutritionists. These are rich in vitamins and mineral elements. Over the last decade, several research have been reported that diets, low in fat and rich in fiber are protective against cancers and the risk of coronary heart disease [1]. Among the leafy vegetables, amaranthus is a commonly available and used, due to its easiness in culture, nutritive value, fast growth rate, adaptability to varying agro climates, high yield potential,

relatively less susceptible to soil born diseases and serious pests. And also it is an important vegetable for human nutrition. The leaves of amaranthus are high in protein, vitamins, and minerals [2]. Further, it fits well in a crop rotation because of its very short duration and large yield of edible matter per unit area.

Growers usually harvest the whole plant of leafy vegetable, which is sold with little or no processing [3]. Growers maintain a supply of amaranthus vegetable for sale at the market, by repeatedly sowing, growing and harvesting crops. Alternatively, a reaping and regrowth system can be used in leafy vegetable production. The reaping and regrowth system is feasible for leaf vegetable production [4-5]. The reaping and regrowth method leads to higher yields with earlier cropping and less space is needed to produce the same amount of vegetables [3] and this method can save costs and labour thus improving the profit. This production system is not new and it has been widely used in grass and tea production [6]. In leafy vegetable production, the reaping and regrowth system has been shown to be suitable for leafy vegetables. The leafy vegetable and shoot vegetable can be successfully produced using a reaping and regrowth system [4]. Growers can harvest many times during period of crop life time. Reaping and regrowth can improve the productivity of leafy vegetables and save time and costs [4-5].

Leafy vegetable are often harvested by repeated cutting of edible tops and allowed a period for regeneration between harvests. This is repeated several times until flower initiation and there after plants are left to form and mature seeds. In Sri Lanka, only one variety DOA Green has been released by the Department of Agriculture. Another accession, Diyapalagoda shows promising quality characters in vegetables as well as in seed production. Therefore this experiment was carried out to study the growth and yield of amaranthus accession Diyapalagoda raised from ratoon and main seeds at the Horticultural Crop Research and Development Institute (HORDI), Sri Lanka.