

2.7 Algae, pest, and nutrient management

The proliferation of algae was curbed by preventing the light penetration of nutrient reservoirs and pipelines by covering with black polyethylene sheeting, and systematic sanitisation in tandem with the nutrient replacement process. Small amounts of hydrogen peroxide were put in place to retard the growth of algae. There were no cases of pest or pathogenic infestation that were reported during the trial and this could be credited to the introduction of a soilless hydroponic system of cultivation. Initially, a replacement of nutrient solutions was done on a ten day basis but this was later changed to a five day basis to ensure that it was more adjusted to physiological rates of uptake of nutrients by plants (Figure 5).

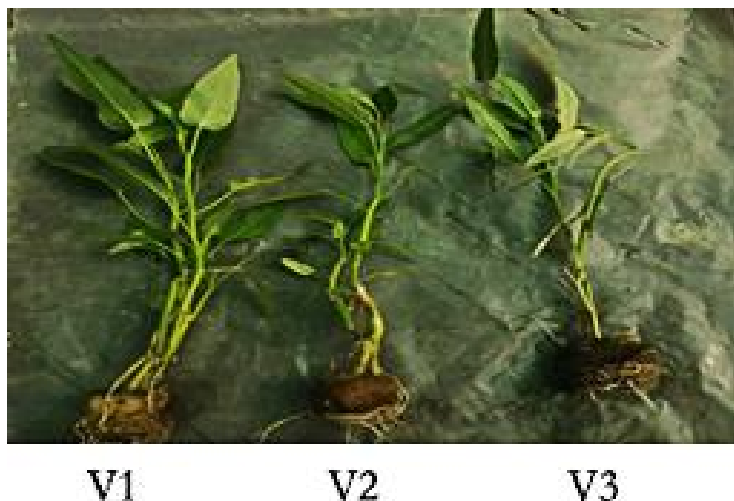


Figure 5 Plant harvesting

2.8 Harvesting and data collection

Data were collected at various Days After Transplanting (DAT) on the following morphological, yield contributing, and quality criteria.

2.8.1 Morphological parameters

Plant height, measured using a scale from each plant at 7-day intervals starting at 10 DAT and continuing until 56 DAT, was defined as the distance between the tips of the tallest leaves from the ground. The units were stated in centimeters.

The swamp cabbage plant's overall height was measured at two growth intervals in order to determine the absolute growth rate, or AGR. The daily growth rate was calculated by dividing the difference in plant height by the number of days between the two measurements. The following formula was used to determine the absolute growth rate:

$$\text{Absolute growth rate (AGR)} = \frac{H_2 - H_1}{t_2 - t_1} \text{ cm/day}$$

Where, H_1 means height for D_1 , H_2 means height for D_2

Starting at 10 days after transplanting (DAT) and continuing at seven-day intervals, the number of leaves on each plant was recorded until 56 DAT. At the last stage of harvest, the number of branches on each plant was noted. Every primary branch that emerged from the main stem was manually counted, and the average number of plants in the sample was calculated.

The leaf surface was estimated using an index counter in a portable digital leaf zone (YMJ-B, China). The process is to activate the digital lai counter by feeding it and preparing for use. The Zone Index Compt (LAI) is a specialized tool to quantify the surface of the leaves per unit of surface on the ground. A fresh sheet is chosen for the measurement and transmitted through the device sensor. The sensor, specially designed for this purpose,