

under the given conditions. The superior yield of V1 underlines the potential for high productivity in the context of the NFT system.

The consistency between varieties (known as NS) indicates similar physiological mechanisms that influence the accumulation of the dry matter. Despite the slight deviations, the percentage of dry weight in the tested varieties was relatively even. V1 had the highest dry weight percentage (12.33%), followed by V2 (11.93%) and V3 (11.54%). The percentage of dry weight showed a closer range (11.54%-12.33%) without significant differences between the varieties. Such trends in relation to yield and dry weight vote with the findings of Kowalczyk et al. (2014), which emphasized the influence of genetic characteristics and environmental factors on the productivity of the plants and the composition of the biomass. In contrast to fresh weight and yield, dry weight percentage showed no significant differences between the swamps.

3.11 Quality parameters

The observed fluctuation indicates that the photosynthetic capacity of V2 is relatively unstable over time. Specifically, V2 (LP-1) exhibited the lowest SPAD values, increasing from 28.27 at 14 DAT to 34.20 at 28 DAT, followed by a decline to 29.70 at 42 DAT (Table 12). Significant differences in SPAD values were recorded among the cultivars at all growth stages (14, 28, and 42 DAT).

In contrast, V1 (BARI Swamp Cabbage-1) consistently showed the highest SPAD readings throughout the experimental period, with values of 32.87, 36.90, and 34.90 at 14, 28, and 42 DAT, respectively (Table 12), indicating superior and stable chlorophyll content. V3 (Nice Green) exhibited intermediate SPAD values (29.00, 31.13, and 31.60 at 14, 28, and 42 DAT, respectively), reflecting relatively stable photosynthetic performance across growth stages, although lower than that of V1.

Table 12 SPAD values of swamp cabbage cultivars at different days after transplanting (DAT)

Cultivar	SPAD values		
	14 DAT	28 DAT	42 DAT
V1	32.87 a	36.90 a	34.90 a
V2	28.27 b	34.20 b	29.70 c
V3	29.00 b	31.13 c	31.60 b
LSD (0.05)	1.56	2.16	1.36
CV (%)	2.67	2.54	1.69

Note: V1 = BARI swamp cabbage-1; V2 = La procesa swamp cabbage-1; V3 = Nice green swamp cabbage; NS = Non-significant. Means in the same column with different letter(s) are significant at the 0.05 level of probability

3.12 Content of chlorophyll-a

In every growth phase, there were remarkable variations in the amount of chlorophyll-A in the swamps (14, 28, 42 and 56 DAT). V2 V2 (LP-1) had the maximum chlorophyll a concentration at 14 DAT (0.61 mg/100 g), but its values drastically decreased during the day and reached 0.52 mg/100 g at 56 DAT. The second best performer in this parameter was V3 (nice green), which showed steady intermediate values and its chlorophyll a concentration to 0.60 mg/100 g at 56 DAT (Table 13) at 56 DAT (0.75 mg/100 g) had V1 Bari Swamp Cabbage-1 the highest chlorophyll a level, which is on the larger photosynthetic Efficiency (Appendix XIII) indicates.

These findings suggest that V1 may be better suited for long-term cultivation due to its ability to maintain higher chlorophyll-a levels over time. Since chlorophyll-a directly contributes to the light reaction, it is essential for photosynthesis. V1'S enhanced photosynthetic efficiency and biomass production potential are indicated by its increased chlorophyll-a content. The steady performance of V1 is consistent with research by Ahmed et al. (2021), which emphasized how genetic variables influence chlorophyll content.