

Figure S1. Photon intensity distribution of the luminaire with 80° beam angle used in the experiments (<https://www.hortilux.com/product/hortiled-multi-4dim/>).

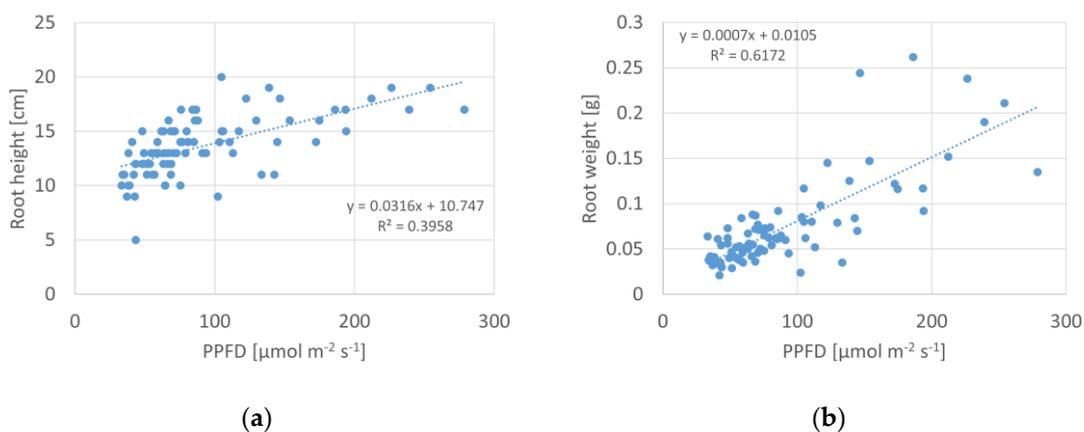


Figure S2. Individual shoot height (a) and root weight (b) as a function of local PPFD for tray B6.

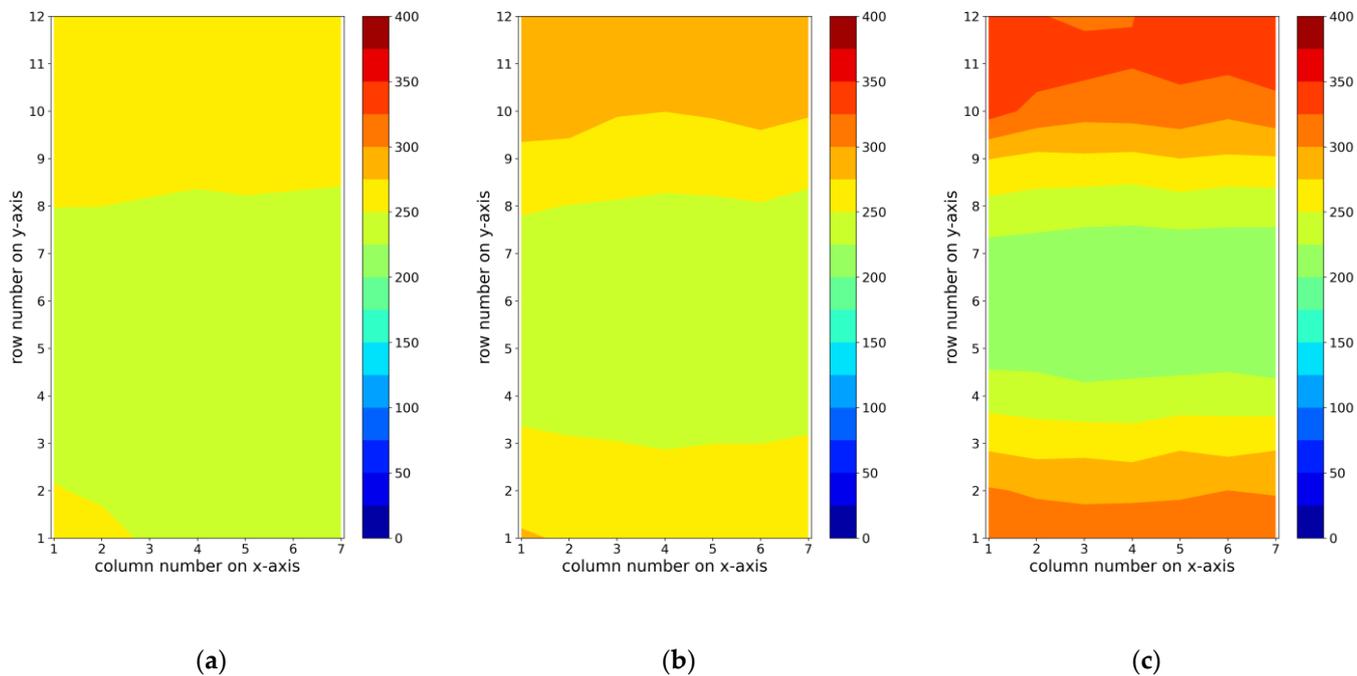


Figure S3. PPFD distribution at the canopy level on tray A. The separation distance between the top leaves and the luminaire (shoot height): (a) 45 (0) cm; (b) 39 (6) cm; (c) 33 (12) cm.

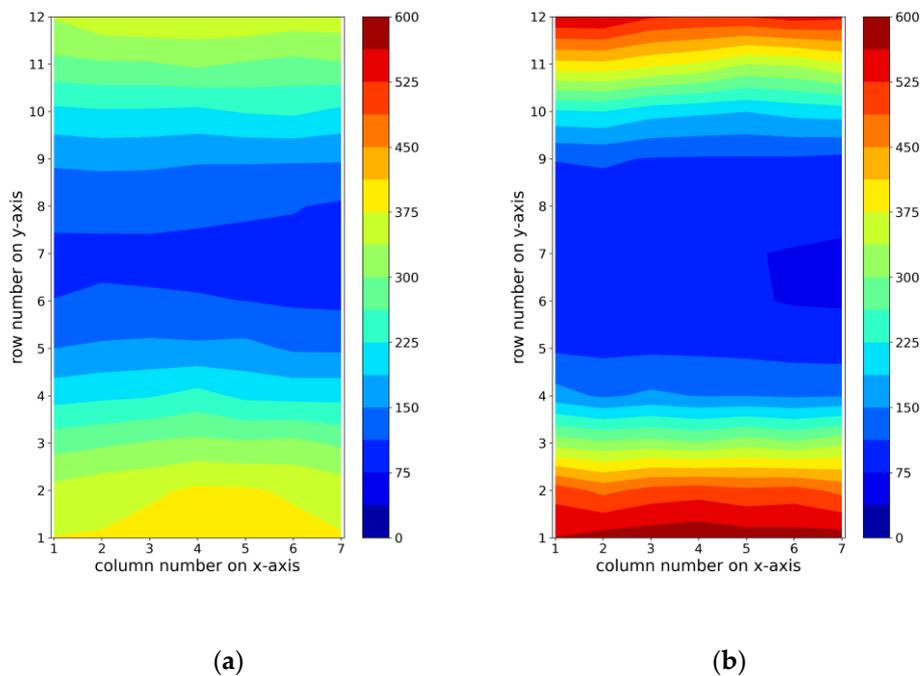


Figure S4. PPFD distribution at the canopy level on tray B1. The separation distance between the top leaves and the luminaire (shoot height): (a) 21 (0) cm; (b) 15 (6) cm.

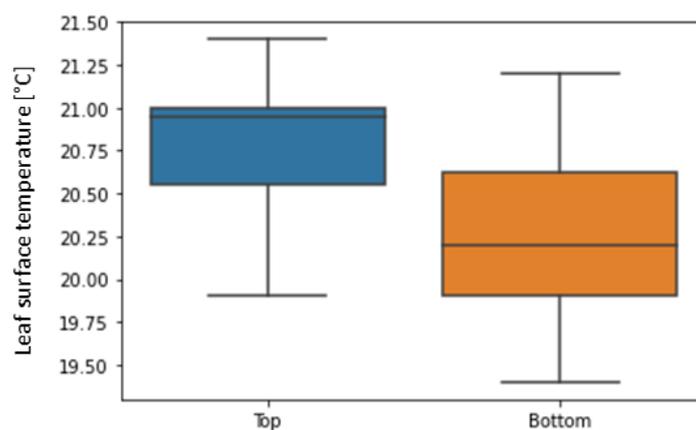


Figure S5. Leaf surface temperature on the top and bottom of a seedling with a height of 17 cm on tray B1. The separation distance between the top leaf and the luminaire was 4 cm. The sample size was 16 in both cases. The difference between the mean temperatures is statistically significant at $p = 0.003$.

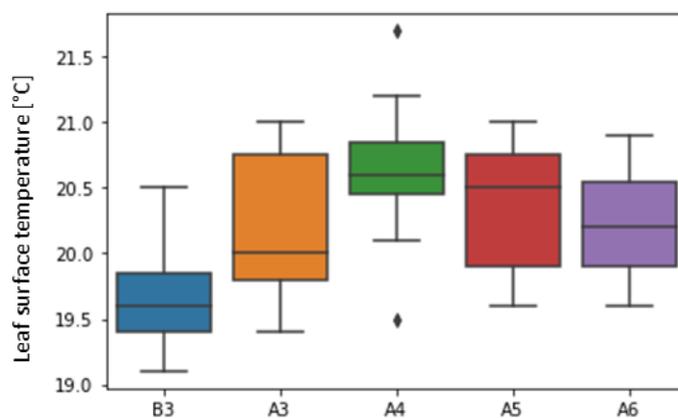


Figure S6. Variation of leaf surface temperature on various trays of the vertical farm. Measurements were taken at 19 randomly selected positions on each tray.