

SOME ASPECTS OF DEVELOPMENTAL CHANGES DURING GROWTH OF *ALLIUM CEPA*-L**S. Kandiah, S. Thiagalingam and K. Theivendirarajah***(Department of Botany, University of Jaffna)*

The growth phases of *Allium cepa* L, var. Vethala can be broadly classified into : (i) Sprouting phase, (ii) Slow growth phase, and (iii) Rapid growth phase. These phases were observed in first week, 2-4 weeks, 4-11 weeks of growth respectively. Maximum photosynthetic area is observed after 5-6 weeks of growth and declines thereafter to about 25 percent of the maximum at maturity. Leaf weight ratio reaches maximum in 4-5 weeks of growth. High net assimilation rate (NAR) observed during early growth may be associated with green portion of leaf acting as sink as well as source initially until it becomes saturated with photosynthetic reserves which is followed by redistribution into the bulbs. A second NAR peak was found to be mainly due to sink demand in the bulb, associated with decrease in photosynthetic area.

Carbohydrates were found to be the major reserve food in the onion plants. The onion bulbs contained about 90% of dry weight as extractable carbohydrates, of which 70-80% was in the methanol fraction. 100 g dry matter yield at maturity was found to be accompanied with incorporation of about 700 mg phosphate. This is equivalent to a harvest depletion of 144 kg of nitrogen and 33 kg of phosphate per hectare of onion land after each crop. A comparison of the yield of new bulb on the basis of dry matter production, carbohydrate content, nitrogen content and phosphate content indicates that it was greater in flower cut plants than in the plants that were allowed to flower.