B-94 Effects of plant spacing on bulb quality and yield of big onion under tropical conditions

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Photoperiod prevailing in most tropical countries including Sri Lanka is marginal for onion bulbing and therefore, it tends to produce a high percentage of poor quality bulbs with thick necks. Cultural practices might play an important role in promoting the production of good quality bulbs under such situations.

An experiment was conducted at FCRDI, during April to August in 2 consective years, 1991 and 1992, to identify the most suitable plant spacing for Big onion cultivar Pusa Red for Yala season, in order to obtain a high percentage of good quality bulbs with thin necks. Results indicated that the percentage of bulbs with thin necks, and the yield of good quality bulbs increased and time to onset of bulbing decreased with the decrease in plant spacing from 15 x 15cm to 5 x 5cm.

The improvement in bulb quality observed with the decrease of plant spacing could be due to higher Leaf Area Index in close spacing when compared to wider spacing. Early canopy cover under closer spacing may have reduced the red:far red ratio of light under the plant canopy because, as reported, leaves absorbred wavelengths more than the far red wavelengths when light passes through a leaf canopy, a lower red:far red ratio may have advanced the onset of bulbing, indicating an increase in the level of bulbing stimulus within plants in closer spacing. However, the weight of good bulbs was lower in closer spacing when compared to those with a wider spacing. However, the total yield of good quality bulbs was higher under the closer spacing due to increased number of bulbs per unit area.