B-71: Effects of plant size and leaf number at different growth stages on subsequent bulbing of tropical short day onion

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In the tropics where there is little change in day length throughout the year, environmental factors such as temperature, nutrition, and spacing and internal plant factors such as age, size and stage of development, become more important in controlling big onion bulbing.

Experiments were conducted at Field Crops Research and Development Institute at Maha Illuppallama during Yala 1995 to test, the effects of size and leaf number of big onion seedlings at transplanting on subsequent growth and bulbing, using different size seedlings of tropical onions of the same age. Different sowing densities and shading treatments were used in the seedling nursery in order to induce differences in seedling size for the experiment. The short day onion cultivar Agrifound Dark Red of Indian origin was used in the study. The size of a transplant in terms of leaf number, leaf area and weight, affected the size of the plant until maturity. Transplant size was positively correlated with time to onset of bulbing, time to maturity, percentage thick neck bulbs, and weight of good quality bulbs. It was negatively correlated with percentage bulbing and percentage contribution from scale leaves to total bulb weight.

Under high photo-synthetically active radiation and moderate night temperature regimes, the supply of photosynthate is not limiting and therefore, small plants could respond to bulbing stimulus quicker than the larger plants of the same age, suggesting that the amount of bulbing stimulus that is needed to induce bulbing in smaller big onion plants is comparatively lower than that in the larger plants of the same age.