

ABSTRACT

A plant density recommendation can be made for the commercial planting of soyabean (Glycine max L. Merrill) in Trinidad of between 80,000 and 110,000 plants per acre. This recommendation was determined in a density/thinning experiment in which four of the treatments were 40,000; 80,000; 120,000 and 160,000 plants per acre. A close study was made on the effects of the treatments on the yield components and patterns of growth and development. Density, over the range tested, had no significant effect on seed yield per unit area. The increased yield per plant at the lower densities was due to the larger number of pods produced per plant and not to differences in the number of seeds per pod or seed size. Axillary branch growth which was also increased at low plant densities was positively correlated with pod number; this is explained by the fact that a greater branching frequency makes available a larger number of nodes, which are sites for flower and pod development. In contrast changes in plant density did not affect the main stem node number and hence the number of pods formed on the main stem. Taller plants were produced at high plant densities because of greater internode elongation. A low correlation was found between seed yield and LAI.

A number of thinning treatments were incorporated into the experiment to determine when plant competition was

important; the plants were thinned at the preflowering, flowering and early pod stages of growth. When plants were thinned at the preflowering stage there was no resultant effect on seed yield, indicating that though plant competition was in progress it was not at a stage that would permanently affect seed yield; also in the less severe thinning treatments no significant effect on seed yield was noticed until thinning was delayed after flowering. All treatments were affected by thinning during the early-pod stage. Pod numbers and seed size were both affected by delayed thinning, the former by a decrease in numbers and the latter by an increase in size; this shows a negative correlation between yield components.