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Growth Pattern and Radiation Interception of Indeterminate Early Soybean Cultivars under High Planting Population

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Abstract:

Two indeterminate early soybean cultivars, Tsurukogane and Huangbaozhu (Ib); and a comparative cultivar, Tachinagaha (IIc, determinate) were grown under two high planting populations (equidistant spacings of 20cm and 30cm) in the experimental field of the Faculty on Horticulture, Chiba University. The adaptability under high planting populations was examined in terms of growth pattern, canopy structure and radiation interception. The rate of increase of the leaf area indices in Tsurukogane and Huangbaozhu were slightly greater than that of Tachinagaha, though there was no significant difference. There was no increase in leaf and stem dry weight in Tsurukogane and Huangbaozhu in the 20cm plot by the end of August. Tachinagaha showed increased dry weight till the middle of September. Plant height of Tachinagaha was higher in the 20cm plot (100cm). Tsurukogane and Huangbaozhu were stunted to about 70cm in both plots. The leaflet area of Tachinagaha increased towards the stem terminal. In Tsurukogane and Huangbaozhu, leaflet areas at the upper nodes were small. In the 20cm plot, Huangbaozhu had smaller leaflets compared to those of the 30cm plot. Though there was no significant difference in intercepted radiation per unit leaf area among the three cultivars in the 30cm plot, Huangbaozhu had significantly greater values and Tachinagaha had smaller values in the 20cm plot. The two indeterminate early cultivars thus showed excellent characteristics in radiation interception.

Keywords:

Canopy structure, High planting population, Indeterminate stem habit, Leaflet area, Radiation interception, Soybean

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