

Association of leaf photosynthesis at reproductive growth stages with yield in soybean progenies (II)¹

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summary

Comparisons were made for CO₂ exchange rate of single leaf on node 4, leaf developmental characters, biomass and yield in narrow and broad leaflet lines derived from HL NO.1 (broad leaf) X KSS NO.10 (narrow leaf) progenies (F₆ and F₇). From to the results indicated that the CO₂ exchange rate of narrow leaflet lines was higher than that of the broad leaflet lines. Positive correlation existed between leaf thickness and leaf area for narrow leaflet lines. Thick leaves in narrow leaflet lines had high specific leaf weight with high chlorophyll content at R₆ stage but in broad leaflet lines did not . At R₅ stage, some of the leaves were damaged by strong wind which reduced source, and therefore the CO₂ exchange rate of both leaflet lines could keep high level at R₅ stage (even higher than R₁ stage in narrow leaflet lines), During reproductive growth stages, positive relationship was found between CO₂ exchange rate and yield in narrow leaflet lines. Besides that, large leaf area with higher yield was also obtained in narrow leaflet lines. In narrow leaflet lines, the leaves maintained higher CO₂ exchange rate, especially at R₆ stage, and higher yield was obtained than in broad leaflet lines (averaged 37.4±7.9 and 27.7±4.3 g/plant, respectively). It appears that breeding narrow leaflet with large leaf area will promote the soybean production in Hualien area.

Key words : Soybean (*Glycine max* L. Merr.). CO₂ exchange rate. Specific leaf weight, Chlorophyll content, Leaf thickenss. Leaf area.

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