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The Relationship between Dry Matter Increase of Seed and Shoot during the Seed-Filling Period in Three Kinds of Soybeans with Different Growth Habits Subjected to Shading and Thinning

[Jin Kakiuchi](#)¹⁾ and [Tohru Kobata](#)¹⁾

1) Faculty of Life and Environ. Sci. Shimane Univ.

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Abstract: The ratio of dry-matter increase in seed (S) to that in shoot (W), referred to as $R_{S/W}$, during the seed-filling period may reflect the balance between the assimilate supply and the sink capacity of harvest organs. In the determinate soybean, cv. Tamahomare, $R_{S/W}$ during the seed-filling period was nearly the same under various growing conditions including shading and thinning of plants. Therefore, the S in the determinate soybean seems to correlate with the W under various conditions. However, the correlation of the S with the W in indeterminate soybeans in which shoot growth continues during the seed-filling period is unknown. In this study, three soybean cultivars [*Glycine max* (L.) Merr.], Tamahomare (determinate), Tozan69 (indeterminate) and Peking (semi-indeterminate), were grown under shading and thinning conditions during the seed-filling period. The $R_{S/W}$ approximated a positive linear regression in the three cultivars. $R_{S/W}$ was approximately 0.5 in each cultivar. Positive correlations were observed between W and S, pod number or total node number in all cultivars. However, the seed number per pod and individual seed weight were not significantly influenced either by shading or thinning in any cultivar. Hence the rate of partition of assimilate to seeds seems to be determined by pod number. Harvest index was stable except when W was extremely low as when plants were heavily shaded. Our results suggested that the $R_{S/W}$, harvest index and the yield-determining processes of the determinate and the indeterminate soybeans are fundamentally the same.

Keywords: [Determinate](#), [Dry matter](#), [Harvest Index](#), [Indeterminate](#), [Soybean](#)



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