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## Factors Responsible for Decreasing Sturdiness of the Lower Part in Lodging of Rice (*Oryza sativa* L.)

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**Abstract:** Here, we propose new improvement targets capable of decreasing loss of the sturdiness of the lower part in the rice plant (*Oryza sativa* L.), thereby improving lodging resistance. In nine rice cultivars with various plant lengths, we analyzed the factors responsible for sturdiness of the lower part and, thus, for resistance to lodging. The ratio of lodging resistance to sturdiness of the lower part (RLS) was calculated. The difference in pushing resistance between the lower part and the whole plant varied among cultivars. Among the morphological traits, plant length and the weight of the upper part of plant were not correlated with RLS, but the difference between plant length and length from the ground to the ear (DPE), as well as the weight of the lower stem, were positively correlated with RLS. DPE and the weight of the lower stem were not significantly correlated with ear weight. These results suggest that improvements in DPE and in the weight of the lower stem could be primary targets for improving RLS, thus increasing lodging resistance, without affecting yield.

**Keywords:** [Lodging](#), [Pushing resistance](#), [Rice](#)


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