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Effects of Planting Time and Nitrogen Application on Dry Matter Yield of the Forage Rice Cultivar Tachiaoba in Southwestern Japan

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Abstract: We examined the effects of planting time on the dry matter (DM) yield of the forage rice cultivar Tachiaoba in southwestern Japan. DM yield was much higher with early planting than with normal planting. Dry weight (DW) per tiller was much higher with early planting than with normal planting. Thus, early planting is effective to obtain high DM yield. DM yield was closely related to the DW increase from transplanting to the full-heading stage (DW increase before heading) and DW per tiller. These results suggest that early planting leads to an increase in DW at the full-heading stage through an increase in DW per tiller and gives a high DM yield at the yellow-ripe stage. We also examined the effects of nitrogen (N) application rate and method on DM yield at the yellow-ripe stage. DM yield was higher with application of 22.5 g N m⁻² than with 15.0 g N m⁻². Although DW per tiller was slightly lower with application of 22.5 g N m⁻² than with 15.0 g N m⁻², the number of tillers per square meter was much higher with application of 22.5 g N m⁻² than with 15.0 g N m⁻². DM yield was the highest with N application method 1 that was applied more N early, followed by methods 2 that was applied more N evenly over time and 3 that was applied more N later. The number of tillers per square meter was much higher with method 1 than with method 2 or 3. Thus, application of 22.5 g N m⁻² by method 1 is effective to obtain high DM yield. With both early and normal plantings, DM yield was closely related to the DW increase before heading and the number of tillers per square meter. These results suggest that application of 22.5 g N m⁻² by method 1 lead to an increase in DW at the full-heading stage through an increase in the number of tillers per square meter resulting in a high DM yield at the yellow-ripe stage.

Keywords: [Dry matter yield](#), [Forage rice](#), [Nitrogen application method](#), [Nitrogen application rate](#), [Oryza sativa L.](#), [Planting time](#), [Tachiaoba](#)

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