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Workability of “No-box Seedlings” Using Seed Mats of Rice

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Abstract

Using a “seed-mat” consisting of hardened rice seeds glued onto a molded rice-hull mat covered with soil glued on, we raised rice seedlings without nursery boxes. The objective of this study is to elucidate the workability of “no-box seedlings” using seed mats. We raised conventional and no-box seedlings in a plastic greenhouse to compare the labor time, weight and tensile strength of seedling mats, characteristics of seedlings and transplanting accuracy between the two seedlings. The labor time required to prepare the no-box seedling was 20.7min/20seedling mats (almost equivalent to 10a), which was about one third that required to prepare the conventional seedlings. The weight of no-box seedling mats was 2.8kg and less than half of that of the conventional seedling boxes. The tensile strength of the no-box seedling mats was 169N/28cm and slightly less than that of the conventional seedling mats, which was strong enough to be rolled and handled without damage. The no-box seedlings were raised one to six days longer than the conventional seedlings. As a result, the no-box seedlings were as tall as the conventional seedlings. Leaf age and seedling weight of the nobox seedlings were similar to or slightly greater than those of the conventional seedlings. When mechanically transplanted, the rate of missing hills of the no-box seedlings was higher than that of the conventional seedlings, but less than 7%. The no-

box seedlings save labor time to prepare for raising seedlings in spring and reduce labor intensity to handle the seedling mats.

Key words

[Labor time](#), [No-box seedlings](#), [Raising seedlings](#), [Rice](#), [Tensile strength](#), [Transplanting accuracy](#)

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