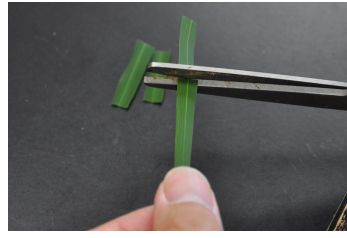


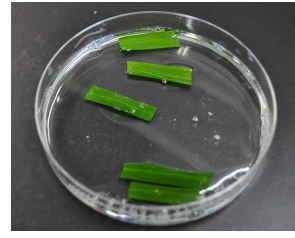
Plants in the field



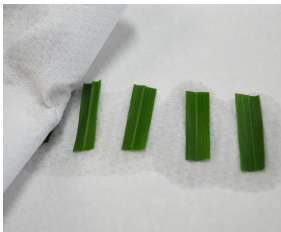
Cut leaves into segments



Wash with detergent



Remove excess solution



Place in a syringe with RNA stabilizing solution



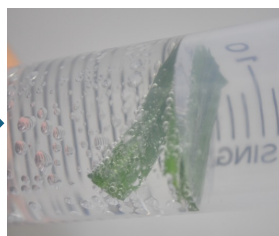
Place the plunger and remove air from barrel



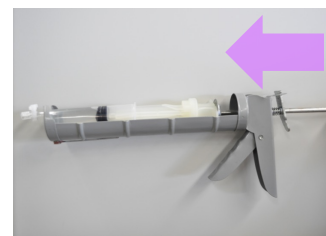
Apply vacuum by pulling the plunger



Remove air bubbles from the leaf surface



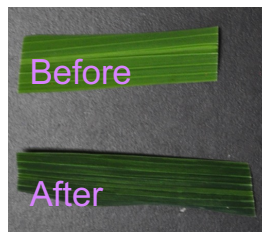
Apply pressure (optionally with a caulking gun)



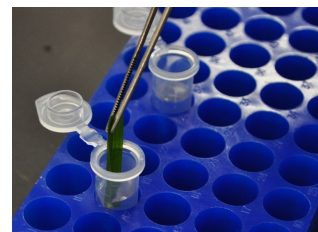
Apply vacuum by pulling the plunger



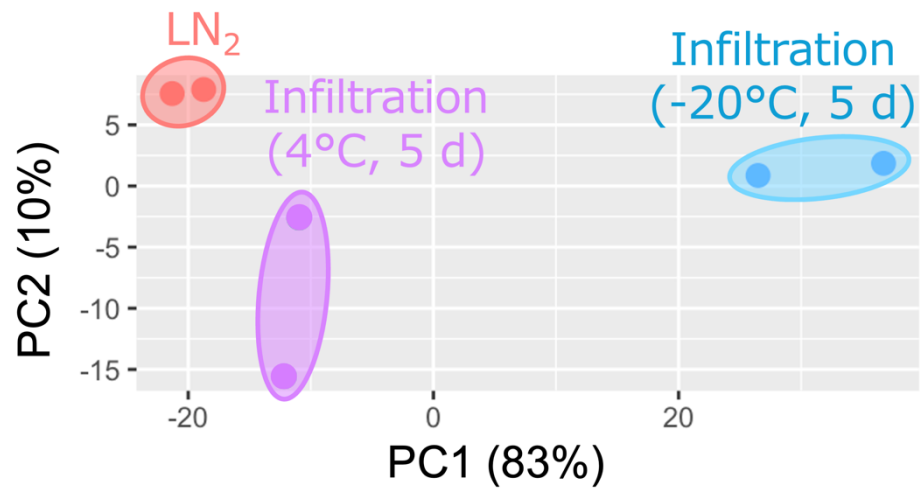
Repeat until the leaf turns blackish



Place in a tube with RNA stabilizing solution



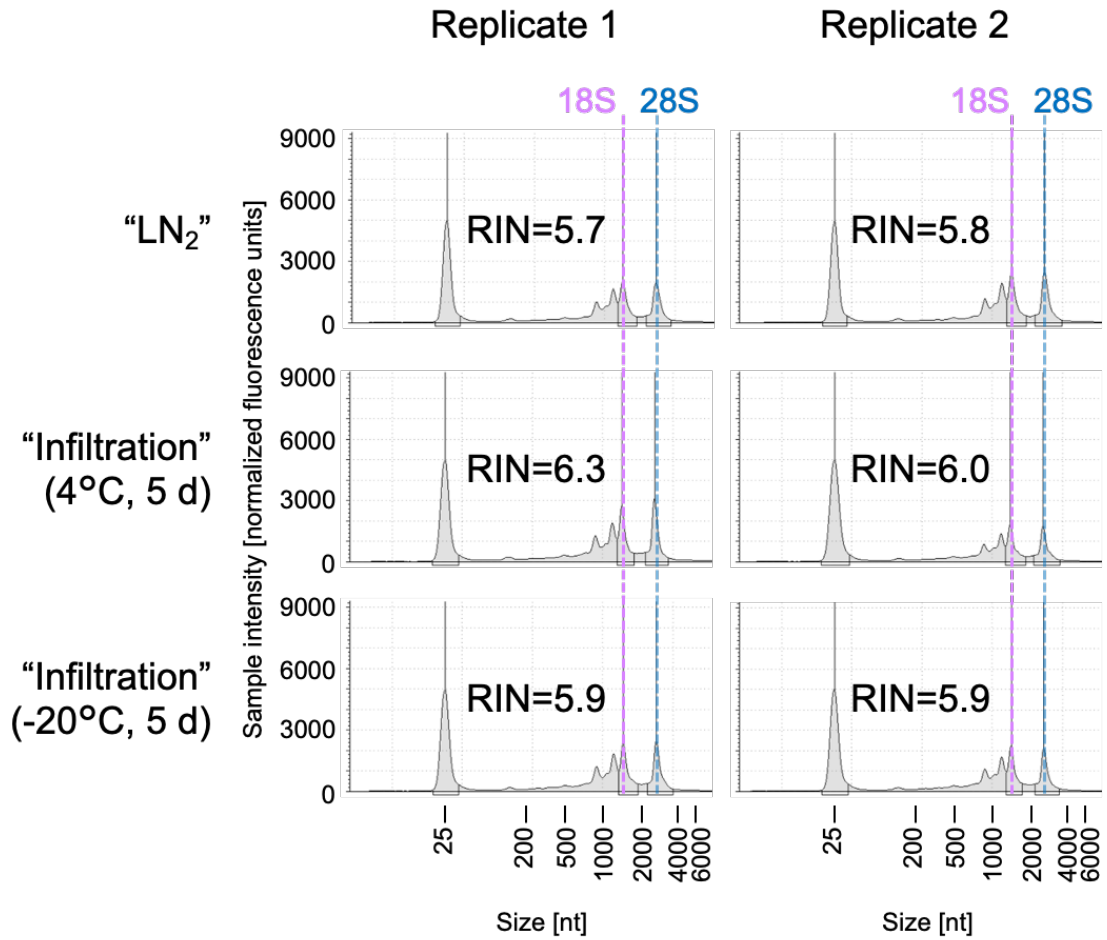
**Fig. S1 | Graphical summary of the infiltration method.**



**Fig. S2 | Comparison of different sample storage conditions in an additional experiment.**

PCA plot was created using the RNA-seq data from Experiment 1.

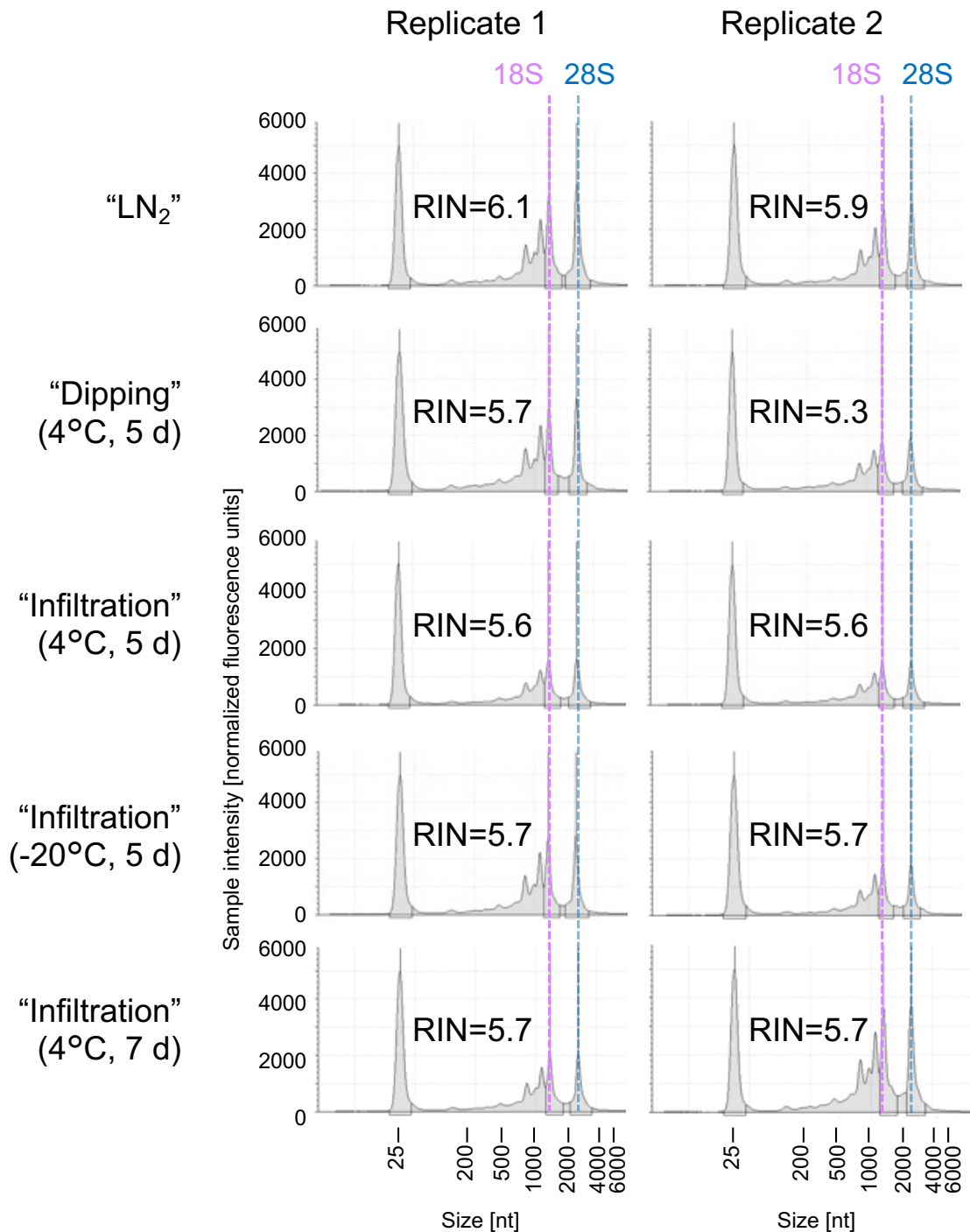
## Experiment 1 (2022)



**Fig. S3 | Analysis of RNA integrity number (RIN) in samples from Experiment 1.**

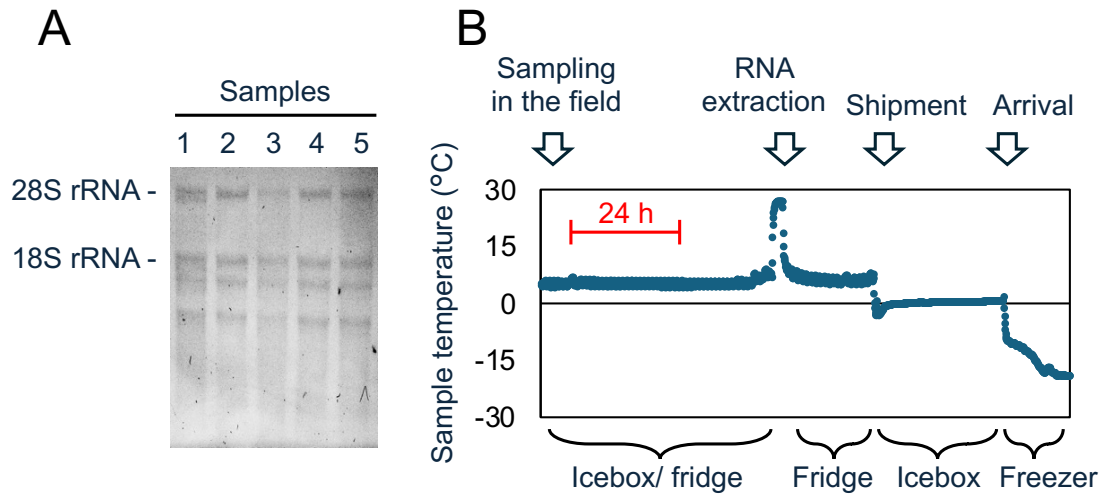
The results from the Bioanalyzer instrument are displayed, with the pink and blue dotted lines indicating the position of 18S and 28S ribosomal RNA.

## Experiment 2 (2023)



**Fig. S4 | Analysis of RNA integrity number (RIN) in samples from Experiment 2.**

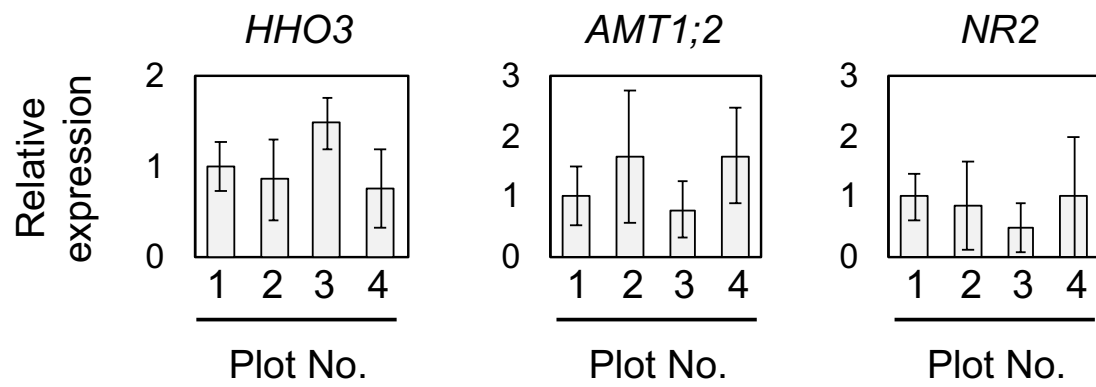
The results from the Bioanalyzer instrument are displayed, with the pink and blue dotted lines indicating the position of 18S and 28S ribosomal RNA.



**Fig. S5 | Quality analysis of RNA shipped under different conditions.**

**A)** The results of RNA electrophoresis. RNA extraction was paused at various steps in Madagascar, and the subsequent analyses were completed in Japan after shipping samples in an icebox. The positions of electrophoresis bands corresponding to 28S and 18S ribosomal RNA are indicated. Sample descriptions (1-5) are the same as in Fig. 4.

**B)** Typical temperature shifts experienced by leaf and RNA samples during storage and shipment. Temperature data was collected using a portable data logger (AD-5326T, A&D Company, Tokyo, Japan).



**Fig. S6 | Expression of nutrient marker genes in rice plants grown in Madagascar.**  
The values represent the means  $\pm$  S.D. (n=3-4).