

Supplementary Table S1. Details on fertilizer application and crop management practices.

Parameter	Details
Fertilizer Application	
Application Rate	60:40:40 kg/ha (N:P:K)
Application Schedule	
Basal Dose	All P, K, and 50% of N were applied during final land preparation.
First Top Dressing	One-fourth of the total N applied 21 days after transplanting.
Second Top Dressing	The remaining one-fourth of N was applied 22 days after the first top dressing.
Crop Management Practices	
Irrigation	Fields are irrigated as required to maintain optimal soil moisture throughout the growth period.
Weed Control	Manual weeding was performed twice, at 20 and 40 days after transplanting.
Pest and Disease Control	Pesticides and fungicides were applied as needed, adhering to recommended doses for rice cultivation.
Intercultural Operations	Regular maintenance was performed, including levelling and monitoring for the uniform crop stand.
Environmental Monitoring	
Soil Type	Sandy loam has a soil pH 5.73, characteristic of the Terai agro-climatic region of West Bengal.
Weather Conditions	Data on temperature, rainfall, and humidity were recorded but are beyond the scope of this supplementary material.