Table S1. Detail of crop husbandry practices during rice crop season in 2017 and 2018.

Year	**2017**												**2018**											
PS	**DDSR**						**TPR**						**DDSR**						**TPR**					
Nitrogen management	N_1	N_2	N_3	N_4	N_5	N_6	N_1	N_2	N_3	N_4	N_5	N_6	N_1	N_2	N_3	N_4	N_5	N_6	N_1	N_2	N_3	N_4	N_5	N_6
Soaking (Rauni) irrigation	3 June						5 July						22 June						20 July					
Land preparation 2 Ploughing + 1 Planking	6 June						-						26 June						-					
Puddling (1 rotavator + 3 cultivation + 2 levelling)	-						7 July						-						26 July					
Nursery sowing for transplanted rice	-						6 June						-						27 June					
Sowing of dry-direct seeded rice	7 June						-						27 June					-						
Seed rate	30 kg ha^{-1}						10 kg ha^{-1}						30 kg ha^{-1}						10 kg ha^{-1}					
Transplanting	-						11 July						-						27July					
Fertilizers application for nursery	-						N: P @ 120: 80: kg ha^{-1}						-						N: P @ 120: 80: kg ha^{-1}					
Fertilizers application	P:K & Zn @ 80: 60: & 8 kg ha^{-1}												P:K & Zn @ 80: 60: & 8 kg ha^{-1}											
Weed management	Oxadiargyl 80% WP (100 g ha^{-1}) Ethoxy sulfuron 60 WG (50 g ha^{-1})																							
N application kg ha^{-1} as basal	0	50	100	150	40	60	0	50	100	150	40	60	0	50	100	150	40	60	0	50	100	150	40	60
2nd Split of N at effective tillering (kg ha^{-1})	-	-	-	-	30	45	-	-	-	-	30	45	-	-	-	-	30	45	-	-	-	-	30	45
3rd split of N at PI stage (kg ha^{-1})	-	-	-	-	30	45	-	-	-	-	30	45	-	-	-	-	30	45	-	-	-	-	30	45
Harvesting	17 October						24 October						26 October						06 November					

PS= production system; DDSR= dry-direct seeded rice; TPR= transplanted rice; N = nitrogen; P = Phosphorous; K = potassium; Zn = Zinc; N_1 (0 kg ha^{-1} N= Control); N_2 (50 kg ha^{-1} N as basal); N_3 (100 kg ha^{-1} N as basal); N_4 (150 kg ha^{-1} N as basal); N_5 (100 kg ha^{-1} N in three splits); N_6 (150 kg ha^{-1} N in three splits)

Table S2. Variance components, the mean sum of square values and Tukey's HSD values ($p \leq 0.05$) for biochemical and cooking quality traits of aromatic rice under different nitrogen management pattern and production systems.

Variance components	DF	Protein contents (%)		WAR		Amylose contents (%)		Bursting (%)		Curling (%)		Elongation ratio		CGL (%)	
		2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
V_{PS}	1	0.015^{Ns}	0.005^{Ns}	0.23^{Ns}	0.139^{Ns}	6.56^{Ns}	5.61^{Ns}	9.00^{*}	12.7^{**}	6.42^{Ns}	6.59^{*}	3.48^{Ns}	3.42^{*}	0.001^{Ns}	0.001^{Ns}
V_{NM}	5	16.185^{**}	19.08^{**}	6.04^{**}	7.396^{**}	6.20^{*}	6.67^{**}	35.5^{**}	36.3^{**}	13.7^{**}	11.8^{**}	36.5^{**}	28.6^{**}	0.293^{**}	0.253^{**}
$V_{PS \times NM}$	5	0.003^{Ns}	0.004^{Ns}	0.01^{Ns}	0.004^{Ns}	0.34^{Ns}	0.23^{Ns}	0.07^{Ns}	0.01^{Ns}	0.11^{Ns}	0.21^{Ns}	0.15^{Ns}	0.10^{Ns}	0.004^{Ns}	0.002^{Ns}

DF= Degree of freedom; PS= Production system; NM= Nitrogen management; WAR= Water absorption ratio; CGL= Cooked grain length *= Significant at the 0.05 probability level; **= Significant at the 0.01 probability level; Ns= Non-significant at 0.05 probability level by the Tukey's HSD test