Supplementary Table 1. The morphological, physical and chemical properties of the experimental field
Morphological characteristics

A. Morphological characteristics	
Constituents	**Characteristics**
Location	Agronomy Field Laboratory, BAU
Soil Series	Sonatola
Soil tract	Old Brahmaputra Alluvium
Land type	Medium high land
General soil type	Non-calcareous dark grey floodplain
Agro-ecological zone	Old Brahmaputra Flood plain (AEZ-9)
Topography	Fairly level
Soil type and colour	Moderate
Drainage	Dark grey Terrace Soil
Depth of inundation	Above the flood level
Drainage	Well drained
B. Physical characteristics soil	
1. Sand (%) (0.0-0.02mm)	20
2. Silt (%) (0.02-0.002)	67
3. Clay (%)(<0.002mm)	13
4. Soil textural class	Silt loam
5. Particle density (g/cc)	2.60
6. Bulk density (g/cc)	1.35
7. Porosity (%)	46.67
C. Chemical properties of the initial soil (0-15 m depth)	
1. pH (soil: water= 1: 2.5)	6.8
2. Organic matter (%)	1.670
3. Total nitrogen (%)	0.101
4. Available Sulphur (ppm)	13.90
5. Available phosphorous (ppm)	26.0
6. Exchangeable potassium (me %)	0.14
7. Available zinc	0.5

Supplementary Table 2. Distribution of monthly average air temperature relative humidity, rainfall and sunshine hours of the site of the experiment during the period from June to December 2023

Month	****Air temperature (°C)**		****Relative humidity (%)**	****Rainfall (mm)**	***Sunshine (hrs)**
	Max	Min			
June	38	28	81	469	116.5
July	36	28	85	401	100.6
August	35	27	86	400	84.4
September	35	27	85	311	138.5
October	32	26	80	179	205.9
November	30	24	75	18	200
December	27	18	60	2	117.9

*Monthly total
**Monthly average
Source: Weather Yard, Department of Irrigation and Water Management, Bangladesh Agriculture University, Mymensingh

Supplementary Table 3. Distribution of 24 germplasms average intra and inter-cluster distance among the rice germplasms for yield and yield contributing traits in five clusters

Cluster name	I	II	III	IV	V
I	**1090.47 (33.02)**	1482.24 (38.50)	1582.87 (39.79)	947.32 (30.78)	1691.05 (41.12)
II		**516.28 (22.72)**	446.48 (21.13)	1458.30 (38.19)	359.50 (18.96)
III			**431.00 (20.76)**	1469.58 (38.34)	329.94 (18.16)
IV				**0.00**	1620.12 (40.25)
V					**151.35 (12.30)**

* Diagonally bold figures indicate the intra-cluster distance