Proposed Research Program 2024-2025

Sl. No.	Program Area/Project/ Experiment Title & Duration	Major Objective	Expected output
	Biotechnology Division		
1	Development of premium quality rice (Kalizira type) variety	To develop premium quality rice DH lines through anther culture	Premium quality rice lines will be developed
2	Development of Aus variety	To develop short duration high yield Aus rice variety through anther culture	Short duration high yield Aus rice lines will be developed
3	Development of Aus variety	To develop short duration high yield Aus rice variety through anther culture	Short duration high yield Aus rice lines will be developed
4	Development of high yielding photosensitive rice variety through anther culture	To develop photosensitive rice variety	Photosensitive rice lines will be developed
5	Development of high yielding photosensitive rice variety through anther culture	To develop photosensitive rice variety	Photosensitive high yielding rice lines will be developed
6	Development of low glycemic index (GI) rice variety	To generate low glycemic index rice through anther culture	Low glycemic index rice lines will be developed
7	Development of antioxidant-enriched black rice variety through anther culture	To develop antioxidant enriched high yielding black rice	Antioxidant enriched high yielding black rice lines will be developed
8	Development of protein and vitamin E enriched high yielding rice	To generate doubled haploid plant for protein and vitamin E enriched high yielding rice	vitamin E enriched high yielding rice variety will be develpoed
9	Development of ultra low GI rice variety development	To generate doubled haploid plant for ultra low GI rice variety	ultra-low GI rice variety variety will be develpoed
10	Studies Study on Kernel Elongation of Rice	to develop long slender rice variety with high kernel elongation (>1.7	Long slender rice lines with high kernel elongation will be developed
11	Development of premium	To create somaclonal variation towards	premium quality (Kalijira type) rice

	quality rice (Kalizira type) variety through somaclonal variation	development of high yielding premium quality (Kalijira type) rice varieties	varieties will be developed
12	Development of antioxidant enriched black rice variety through somaclonal variation	To create somaclonal variation for development of antioxidant enriched high yielding modern rice variety	Antioxidant enriched high yielding modern rice lines will be developed
13	Development of High yielding variety through somaclonal variation	To create somaclonal variation towards development of high yielding rice variety	high yielding rice variety will be developed
14	Development of high yielding premium quality rice variety through somaclonal variation	To select the best lines with high yield and desirable traits	high yielding premium quality rice variety will be developed
15	Preliminary yield trial (PYT) of mutant BRRI dhan48 and BR11	To evaluate initial yield potential of advanced breeding lines	potential of advanced breeding lines will be developed
16	Development of high yielding short stature aromatic Kilizira type varieties using EMS	To develop high yielding short stature aromatic Kilizira type varieties	Aromatic Kilizira type varieties will be developed
17	Development of Sheath Blight resistant rice through mutation by EMS	To develop Sheath Blight resistant lines	Sheath Blight resistant lines will be developed
18	Development of Premium Quality Rice through Mutation by EMS	To develop high yielding, short stature, aromatic rice lines	High yielding variety rice lines will be developed
19	Developing rice variety through wide hybridization followed by embryo rescue	To develop high-yielding variety through wide hybridization followed by embryo rescue technique.	High yielding rice lines will be developed
20	Marker assisted selection for fragrance	To develop high yielding submergence tolerant aromatic rice variety	High yielding aromatic rice lines will be developed
21	Marker assisted selection for BB and Blast resistant rice	To develop BB and Blast resistant rice	BB and Blast resistant rice will be developed

22	Development of BB Resistance BRRI dhan87 through Marker assisted selection	To identify BB Resistant lines	Sheath Blight resistant rice lines will be developed
23	Association mapping (AM) for rice aroma	To purify the germplasm for making AM panel	
24	Introgression of salt tolerant mangrove gene	To develop salt tolerance transgenic rice lines	salt tolerance transgenic rice lines will be developed
25	CRISPR-Cas9 mutagenesis of the *BADH2* gene for aromatic rice	To develop aromatic rice variety using CRISPR-Cas9-targeted mutagenesis of *BADH2* gene.	Transgenic plants will be confirmed by PCR and sequencing and Gene expression will be done
26	Suppression of serotonin synthesis in rice using CRISPR/Cas9 for insect control	To develop high yielding aromatic rice	High yielding aromatic rice lines will be developed
27	Development of photosensitive high yielding rice variety	To identify genomic location controlling photosensitivity.	Photosensitive high yielding rice lines will be developed
28	Marker assisted selection for aromatic and submergence tolerance rice genotype	To develop high yielding submergence tolerant aromatic rice variety	High yielding submergence tolerant aromatic rice lines will be developed
29	Marker assisted selection for developing short stature Biroi rice	To develop high yielding biroi type rice varieties	Short stature Biroi rice lines will be developed
30	Isolation and cloning of drought tolerant genes from wheat	Isolate and cloning of drought tolerance gene	Drought tolerance gene will be isolated for the development of drought tolerant rice lines
31	Development of salt tolerant transgenic rice	To develop salt tolerant transgenic rice lines	Salt tolerant transgenic rice lines will be developed
32	Introgression of salt tolerant mangrove gene.	To develop salt tolerance transgenic rice lines	Salt tolerant transgenic rice lines will be developed
33	Development of salt tolerant transgenic rice	To develop salt tolerant transgenic rice lines	Salt tolerant transgenic rice lines will be developed

34	CRISPR-Cas9 mutagenesis of the *BADH2* gene for aromatic rice	To develop aromatic rice variety using CRISPR-Cas9.	Aromatic rice variety will be develpoed
35	Suppression of serotonin synthesis in rice using CRISPR/Cas9 for insect control	To develop insect resistant rice line by editing *OsCYP71A1* gene via CRISPR/Cas9 system	Insect resistant rice lines will be developed
36	Redesigning photosynthesis to enhance sustain rice yield potential under climate change	To improve rice photosynthesis	photosynthesis to enhance sustain rice yield potential
37	Redesigning photosynthesis to enhance sustain rice yield potential under climate change	To improve rice photosynthesis	photosynthesis to enhance sustain rice yield potential
38	Studies Study on Kernel Elongation of Rice	to develop long slender rice variety with high kernel elongation (>1.7)	Long slender rice lines with high kernel elongation will be developed.