INTRODUCTION OF EXOTIC RICE VARIETIES IN RAINFED LOWLANDS OF MEGHALAYA, NORTH EASTERN INDIA.

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The experiment was carried out with 93 rice germplasm received from IRRI along with two local checks viz., RCPL-1-87-8 and Ngoba to evaluate the germplasm for their suitability in the lowlands of Meghalaya. These genotypes were developed at different rice improvement centers of the world viz. CIAT, Colombia; IRRI, Philippines, IITA, Nigeria, WARDA Liberia and also from Brazil, Turkey, Malaysia and Peru. The materials were grown in augmented design. Ninety germplasm were randomly classified into five groups consisting of 18 genotypes each with five checks, which were replicated, in all groups. Three international checks viz., IR 90, IR 72 and PSB-RC-2 and two local checks viz., Ngoba and RPCL 10-87-8 were included in all blocks. Each entry was grown in an area of 1.8 m^2 with a spacing of 20 x 10 transplanting single seeding per hill. Standard agronomic practices recommended for lowlands of Meghalaya were adopted to raise the crop. Observations were made on ten characters from the five competitive plants following standard evaluation system of IRRI (IRRI, 1996).

Performance and particulars of the rice germplasm evaluated is given in Table 1. International and local checks were consistently stable in performance over all blocks indicating the uniform and equal treatment of all the entries. With respect to yield, genotypes viz., Tox 3055-10-1-1-1-2, CNAX 4354-2-3-1-2B and CT 9846-1-7-1-1-2P-M, ITA 402 and P 4 were identified for further testing and introduction in the rainfed lowlands of this region. With respect to other yield contributing characters genotypes performed better are given in Table 2. For breeding varieties for short duration genotypes with less than 120 days to mature were selected and for longer duration genotypes having more than 150 days to mature were selected. Mixed response of yield was found in the genotypes having shorter duration while Xuan So 5 recorded more than 6 ton/ha other entries viz., WAB 340-B-B-10-H2 and WAB 368-B-1-HI-HB exhibited poor yield. The same trend was noticed in longer duration genotypes. Among the genotypes studied, no significant variation was observed between total tiller and effective tillers. However the genotypes producing higher number of tillers were not found to be high yielding. Plant type concept developed by IRRI for the lowland suggests that the plant should have short stature with good tillering capacity and also having short erect leaves in order to have the optimum utilization of resources (air, water and sunlight) without competition within a plant and among the plants. Accordingly the genotypes 18447, 93F106, CT 9682-2-M-11-2-M-1-2P-M, CT9868-14-3-1-4-3-P-M, HB 94061, IR 95621-299-3-2-3-3, IR 68068-99-1-3-3-3, Lu Hong Zao 1 Karjat-2 and IR 69710-2-1-2-2 were found to be with these characters. These genotypes along with high yielding varieties can be used in the breeding programme to improve the yield contributing characters, which in turn will boost yield.

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Table 1. Mean performance of entries of diverse origin

Origin Country/ Destitution	Number of entries	Days to maturity	Plant height (cm)	Yield potential (t/ha)
CIAT	11	126	72.5	4.5
Brazil	7	130	81.6	3.2
China	4	121	65.2	1.8
Bangladesh	3	135	75.7	3.9
Mexico	3	150	78.0	3.5
Vietnam	9	130	75.1	4.4
Philippines	1	142	80.3	3.2
Thailand	2	139	84.4	5.5
IRRI	30	132	71.8	3.9
IITA	7	147	75.6	5.1
India	2	137	78.9	4.5
Turkey	2	140	64.0	2.3
Togo	1	139	103.7	3.1
Peru	1	141	82.2	6.7
Malaysia	2	137	71.7	3.7
WARDA	4	125	92.0	3.6
International Check	3	134	66.8	3.4
Local check	2	139	89.1	5.8

Table 2. Superior varieties selected for different economic traits

Traits	**Suitable varieties**
Short duration	WAB 340-B-B-10-H2, WAB 368-B-1-H1-HB, Xuan S05
Long duration	CT 9682-2-M-11-2-M-1-28-M, Tox 3054-136-1-3-1-2, IR 68078-102-3-1, KARJAT-2, IR 68068-99-1-3-3-3
Taller Plant Type	WAB 224-16-HB, M91, CH5
Short Plant Type	93F106, HB 94061
Lengthy Panicle	IR67406-6-3-2-3, IR 71604-4-4-3-4-3-3-3, IR 71604-4-3-3-7-2-2-3-3, IR 71606-2-1-1-1-3-3-1-2
More number of tillers	93F 106, IR 73887-1-2-7, Karjat-2, IR 68440-61-1-3-2, IR 6844-18-3-3
More number of total grains/panicle	Tox 3055-10-1-1-1-2
More number of filled grains/panicle	Tox 3055-10-1-1-1-2, IR 69715-123-1-3, WAB 224-16-HB
Heavier grains	WAB 340-B-B-10-H2, IR 7388-1-2-7, MK 9-87