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ADT 40, A HIGH YIELDING RICE VARIETY FOR WATER-LOGGED/ FLASH FLOOD SITUATION OF TAMIL NADU

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ABSTRACT

ADT 40 (IET 5656) is a hybrid derivative of the cross RPW 6-13/ Sona identified from among cultures tested under All India Co-ordinated Trials. It is non-lodging and medium tall (100-115 cm) with a duration of 140-145 days. IET 5656 has recorded a mean grain yield of 4688 kg/ha inspite of prolonged water stagnation and submergence. It is resistant to blast and moderately resistant to BPH, gall midge and brown spot.

KEY WORDS: Abiotic Stress, Water logging, Rice variety.

The low land areas of Thalainayar, Thiruthuraipoondi, Muthupettai and Nagapattinam of Thanjavur district of Tamil Nadu are affected by severe floods during the North East monsoon every year. The whole crop gets submerged for a period from 5-15 days during crop growth at different growth stages. Locally adapted varieties including TNR 1 and TNR 2 tolerate these situations, but they are very poor yielders. Hence, there was long standing demand for flood tolerant high yielding variety for this situation.

MATERIALS AND METHODS

Cultures from different countries as well as from All India Coordinated Rice Improvement Project, Hyderabad were evaluated at Tamil Nadu Rice Institute, Aduthurai in the artificially deepened field with water stagnation upto 50 cm during the year 1984-85 to 1987-88 in Samba season (July-August sowing). Promising entries were also tested under normal irrigated condition. Among them, IET 5656, a hybrid derivative of the cross RPW 6-13/Sona was identified as a high yielder. During 1986-87, Adaptive Research Trials were conducted at the farmers holdings of Thanjavur and Kanyakumari districts under water logged/flash flood situations.

RESULTS AND DISCUSSION

The distinguishing morphological characters of IET 5056 are furnished below: Habit erect, compact, thick culm and profuse tillering; Plant height 100-115 cm; Leaf sheath green;

Table. Performance of IET 5656 - Grain yield (kg/ha)

	IET 5656	CO 42	TNR 1	Pankaj
1) TRRI, Aduthurai (Mean of 4 years)				
Normal condition	4862	4278	2806	3333
Water logged condition	4688	4167	2639	3889
2) Adaptive Research Trial (11 locations)*	5577	5257	4260	-
3) AICRIP trials**	3590	-	-	3180

* Thanjavur (5 locations) and Kanyakumari (6 locations) districts.

** Locations: Cuttack, Patna, Chinsurah, Ghaghraghat, Karjat, Faizabad and Jorhat.

Pulvinus green; Leaf axil green; Leaf blade green; pubescence; Ligule white, cleft; Auricle dull white; Septum cream; Flag leaf erect, broad and acute; Panicle exertion full; Fertile glumes green at flowering and straw at ripening; Apiculus green; Awns absent; Grains (LxBxT) 8.4 x 3.4 x 2.1 mm; 1000 grain weight 25.2 g; Hulling 79.9%; Milling 74.6%; Kernels (LxBxT) 6.4 x 2.9 x 2.0 mm; L/B ratio (Kernels) 2.21; Rice grade short bold; Rice colour white; Abdominal white absent; Translucscency present.

The culture IET 5656 recorded a mean grain yield of 4688 kg/ha inspite of prolonged water stagnation and submergence as against 2639 kg/ha recorded by the conventional cultivar TNR 1 with an yield increase of 77.6 per cent (Table).

In the Adaptive Research trials conducted under natural flooded situations in the farmers' holdings of Thanjavur and Kanyakumari districts, IET 5656 maintained its superiority over TNR 1 for submergence tolerance and recorded a mean grain yield of 5577 kg/ha with an yield increase of 31 per cent over TNR 1 (Table). Also in the All India Co-ordinated trials under water-logged situatins, IET 5656 recorded a mean grain yield of 3590 kg/ha as against 3180 and 2900 kg/ha recorded by Pankaj and Mahsuri (Ponni) respectively.

IET 5656 is resistant to blast and moderately resistant to BPH, gall midge and brown spot. The culture has a milling recovery of 74.6 per cent. Its rice is white and classified as short bold for commercial purposes. It possesses good cooking quality with medium amylose content of 23.9 per cent.

IET 5656 was released as strain ADT 50 for water logged and flash flood situations of Tamil Nadu.