

DTM126 – A NEW EARLY-MATURING RICE VARIETY TOLERANT TO ACID SULPHATE CONDITIONS

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DTM126 is a new rice variety developed by Dong Thap Muoi Agricultural Research and Development Center (DARDC). The variety was selected from the cross (DS2001 x MTL250) since 2001 by individual selection through F1-F6 generations following the pedigree method. During 2009-2010, the variety entered field trials for two Summer-Autumn seasons over six locations in Dong Thap Muoi province. In the National Crop Variety Evaluation Network (NCVEN), DTM126 was involved in the regional trials over six locations in Mekong River Delta (MRD) and Southeast Regions during the Summer-Autumn

season of 2009. Evaluation for disease and pest resistance and tolerance in acid sulphate conditions, were carried out under either greenhouse and/or field conditions. Results indicated that DTM126 is a promising variety due to a high resistance to several common pests and diseases. This variety also tolerates to high levels of aluminium and iron in acid sulphate soils. It obtained a high yield and is a good quality rice variety. For all these superior characteristics, DTM126 was officially recognized and approved by the Ministry of Agriculture & Rural Development for large-scale production.

PEST AND DISEASE RESISTANCE

Results from the greenhouse test showed that DTM126 got a considerable level of resistance to brown planthoppers which is comparable to that of standard variety (level 3). In the field trials, DTM126

showed good resistance to rice blast with disease indexes recorded in most cases 1-3 while the standard check had the scores of 3-5.

TOLERANCE TO ACID SULPHATE CONDITIONS

In a pot experiment, it was observed that DTM126 grew faster than VND 95-20, a variety used as a check variety. At 7 days after transplanting (DAT), DTM126 seedlings reached 33.0 cm while the check variety was a bit shorter (32.6 cm). At 30 DAT, all seedlings of the check died while DMT126 seedlings did not. They were stunted with some changes in the leaf color.

In a field experiment with and without phosphorus, DTM126 still gave high number of tillers (399/m²), comparable to those of treatments with phosphorus (401/m²) at 15 days after sowing (DAS). Similar trend was observed at 30 DAS. The number of tillers per m² was 693 in without P treatment and 698 in with P one. There was a big difference in tillers per m² between without and with P at 30 DAS: 607 vs. 768, respectively.

GRAIN YIELD POTENTIAL

During the Summer-Autumn seasons of 2009 and 2010, DTM126 gave an average

yield of 3.82 tonnes/ha over six testing locations, significantly higher 20.0-35.7 %

than those from check variety (Table 1 & 2). In the multi-location trials conducted by the NCVEN, average grain yield of DTM126 was high (6.42 tonnes/ha) and ranked among the best yielding varieties in

Ninh Thuan and Binh Thuan provinces of the Southeast Region, but not as high as those on alluvial soil of Can Tho, An Giang, Kien Giang and Long An provinces, the MRD (Table 3).

GRAIN QUALITY

Quality tests showed that DTM126 has relatively high unbroken-grains after milling (50.2%). DTM126 also has a good-

looking: long and transparent grains. The cooked rice grains are soft and tasty and highly acceptable by the consumers.

Table 1. Average grain yield of 10 rice varieties grown over six locations, during the Summer-Autumn season 2009

No	Variety	Panicles /m ²	Number of filled grains/panicle	Percentage of unfilled grains (%)	Weight of 1000 grains (gr)	Grain yield (tonne /ha)	Yield increased from check (%)
1	DTM 126	379	46	20.9	27.9	3.82	35.7
2	DTM 134	354	47	23.2	27.4	3.54	25.6
3	DTM 192	351	51	17.3	26.4	3.39	20.4
4	OM 6677	350	45	21.7	27.1	3.26	15.7
5	MN 12	320	49	28.9	25.7	3.21	14.0
6	DTM 144	396	44	28.5	26.8	3.19	13.1
7	OM 7345	348	44	21.8	28.5	3.00	6.3
8	VND95-20 (check)	368	41	22.4	26.7	2.82	-
9	DTM 174	303	47	22.8	27.6	2.69	- 4.4
10	DTM 43	279	36	20.1	23.2	2.37	- 16.0

Table 2. Average grain yield of 10 rice varieties grown over six locations, during the Summer-Autumn season 2010

No.	Variety	Panicles /m ²	Number of filled grains/panicle	Percentage of unfilled grains (%)	Weight of 1000 grains (g)	Grain yield (tonne /ha)	Yield increased from check (%)
1	DTM 126	360	47	23.8	26.4	3.82	20.0
2	OM 6677	380	41	25.4	27.2	3.75	17.8
3	DTM 134	349	49	27.4	27.6	3.55	11.4
4	MN 12	358	46	30.3	26.3	3.45	8.3
5	DTM 144	361	43	29.8	26.6	3.43	7.7
6	DTM 192	359	49	25.3	25.6	3.42	7.4
7	OM 7345	339	41	24.6	26.7	3.35	5.2
8	DTM 43	360	47	26.6	27.4	3.34	4.8
9	DTM 174	345	45	23.0	27.4	3.24	1.8
10	VND 95-20 (check)	460	40	27.5	26.4	3.19	-

Table 3. Grain yield (tonnes/ha) of 31 rice varieties grown at 6 locations during Summer-Autumn season 2009

	Variety	Mekong River Delta				Average	Southeast region		Average
		Long An	An Giang	Can Tho	Kien Giang		Binh Thuan	Ninh Thuan	
1	OM 5629	4.99	5.91	5.44	4.78	5.28	6.50	6.80	6.65
2	OM 5472	5.72	5.47	4.63	5.64	5.37	4.80	7.20	6.00
3	MNR 2	6.05	4.77	4.75	4.99	5.14	5.30	6.93	6.12
4	OM 7347	4.38	4.63	4.70	6.23	4.99	5.60	6.93	6.27
5	OM 5954	4.60	4.44	4.41	6.25	4.93	4.90	7.37	6.13
6	OM 6610	3.72	4.65	4.65	6.19	4.81	5.50	7.20	6.35
7	OM 4218	3.80	5.62	4.07	4.52	4.50	5.90	7.13	6.52
8	MTL 500	3.35	4.25	4.84	4.70	4.28	6.10	7.17	6.63
9	OM 4101	3.88	4.80	4.23	5.35	4.57	5.50	7.03	6.27
10	MNR 3	4.23	5.16	4.61	5.74	4.94	4.50	7.10	5.80
11	CM 1	-	4.54	4.82	4.54	4.63	5.40	7.10	6.25
12	MNR 1	4.43	4.94	4.46	3.68	4.38	5.80	7.03	6.42
13	OMCS2007	4.36	5.09	3.72	4.77	4.49	4.90	7.50	6.20
14	DTM 126	4.54	4.96	3.69	3.80	4.25	5.60	7.23	6.42
15	OMCS2000	3.64	4.66	3.70	5.93	4.48	5.10	7.17	6.13
16	BL 29	3.18	4.51	3.15	4.21	3.76	6.20	7.03	6.62
17	OM 7926	3.65	4.33	4.25	4.69	4.23	4.50	7.37	5.93
18	MNR 5	4.41	4.53	3.59	6.46	4.75	3.80	6.97	5.38
19	OM 6700	3.61	4.52	3.88	5.37	4.34	4.50	7.10	5.80
20	N. HOA 9	4.46	4.79	3.42	5.12	4.45	4.65	6.67	5.66
21	OMCS2009	3.34	4.27	3.58	5.41	4.15	4.60	7.17	5.88
22	MTL 608	2.95	4.56	3.86	-	3.79	5.20	7.23	6.22
23	MTL 604	3.80	4.57	4.23	-	4.20	5.50	5.77	5.63
24	OM 5166	-	4.18	-	4.33	4.25	4.50	6.87	5.68
25	DTM 192	3.87	5.17	3.64	4.59	4.32	4.40	6.63	5.52
26	OM 7348	2.49	5.17	3.09	3.91	3.66	4.70	7.13	5.92
27	OM 6072	3.95	4.41	3.92	4.64	4.23	4.00	6.83	5.42
28	GKG 1	2.44	4.96	4.17	-	3.86	4.60	6.80	5.70
29	BL 17	-	3.88	3.68	5.16	4.24	4.30	6.13	5.22
30	MNR 4	4.70	4.74	4.20	5.92	4.89	4.40	-	4.40
31	BL 45		4.22	3.37	4.19	3.93	3.50	6.33	4.92
	CV (%)	13.6	7.9	15.3	11.3		7.6	6.9	
	LSD _{0.05}	0.9	0.6	1.0	0.9		0.6	0.8	

Source: Center for Evaluation and Certification of Plant Variety, Seed and Fertilizers for Southeast Region.

