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ADRH 4: A PROMISING SHORT DURATION RICE HYBRID FOR TAMIL NADU

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ABSTRACT

The performance of rice hybrids was studied during the years 1994- 1997 under multilocation trials in various research stations of Tamil Nadu Agricultural University. The results indicated that the short duration (110-120 days) hybrid ADHR 4 was found to be promising.

KEY WORDS : ADHR 4, rice, hybrid

Hybrid rice offers opportunity to break through he yield ceilings of semi dwarf rice varieties. Recognising the success of hybrid rice cultivation n China, the scientists of Paddy Breeding Station, Tamil Nadu Agricultural Unviersity, Coimbatore ook up research on hybrid rice from 1979-1993 and released the first hybrid rice CORH 1 during January 1994 for commercial cultivation (Rangasamy *et al.*, 1995). The work on the development of rice hybrids was continued in Tamil Nadu Agricultural University. As a result, a high yielding short duration rice hybrid ADRH 4 was identified and its performance under yield trials is discussed hereunder.

Table 1. MLT Hybrid rice (110-120 days) 1994-95: grain yield(kg/ha) and duration(days)

Entries	Aduthurai	Amba-samudram	Coimbatore	Tirur	Madurai	Killikulam	Bhavani-sagar	Mean	%increase
ASRH 1	4754	4231	5476	2422	4389	5750	2889	4273	-14
	(109)	(107)	(108)	(115)	(110)	(110)	(111)		
ASRH 2	3275	4002	6071	2250	4167	5687	3185	4091	-18
	(110)	(107)	(110)	(110)	(115)	(111)	(110)	(110)	
ADHR 4	7169	4556	7349	3711	7723	5187	4000	5671	+14
	(123)	(115)	(115)	(120)	(110)	(110)	(117)		
TNRH 7	5227	3957	6308	3794	4444	4375	2815	4417	-11
	(116)	(107)	(112)	(110)	(115)	(114)	(112)	(112)	
ADT 42	5536	6205	6649	3366	4500	5125	3407	4970	0
	(121)	(111)	(112)	(120)	(115)	(123)	(110)	(116)	
CORH 1	5816	3604	5952	3333	4444	3778	4625	-	
	(116)	(109)	(114)	(110)	(115)	(110)	(111)	(112)	

Table 2. MLT Hybrid rice (110-120 days) 1995-96: grain yield(kg/ha) and duration(days)

Entries	Aduthurai	Coimbatore	Amba-samudram	Madurai	Killikulam	Mean	% Over ADT 42	% Over CORH 1
ADRH 4	6875	6295	7909	3700	5625	6081	0	+14
	(113)	(118)	(112)	(114)	(121)	(116)		
ASRH 8	2179	2469	2331	3900	5125	3201	-47	-40
	(116)	(117)	(110)	(114)	(116)	(115)		
ASRH 11	5851	6257	7454	4550	6900	6202	+2	+16
	(110)	(114)	(110)	(114)	(115)	(113)		
TNRH 8	4719	5764	5069	3915	5225	4938	-18	-8
	(108)	(113)	(106)	(114)	(116)	(109)		
TNRH 13	5920	5946	7311	4035	6550	5952	-2	+11
	(111)	(116)	(106)	(114)	(119)	(114)		
ADT 42	6050	5909	7814	4450	6079	6060	0	+13
	(117)	(118)	(112)	(114)	(124)	(117)		
CORH 1	6042	5265	6384	3950	5137	5356	-12	0
	(111)	(116)	(113)	(115)	(116)	(114)		

Table 3. MLT Hybrid rice (110-120 days) 1996-97: grain yield(kg/ha) and duration(days)

Entries	Aduthurai	Coimba-tore	Amba-samudram	Tirur-kuppam	Bhavani sagar	Killikulam	Trichy	Mean	% Over CORH 1	% Over ADT 42
ADRH 4	6459	7069	7345	6792	9304	5110	5798	6840	45.2	7
	(118)	(118)	(118)	(115)	(112)	(110)	(113)	(115)		
ASRH 11	4644	5402	7524	7000	7612	3444	6131	5965	26.6	-6.7
	(115)	(111)	(110)	(110)	(110)	(108)	(112)	(111)		
TNRH 13	5659	5472	7393	6433	8229	5166	6202	6365	35.1	-0.4
	(117)	(114)	(112)	(110)	(110)	(109)	(116)	(113)		
ADT 42	5557	5021	7524	7533	7820	4888	6109	6393	35.7	0
	(121)	(122)	(115)	(115)	(114)	(121)	(126)	(119)		
CORH 1	3314	5588	4836	5042	6404	3166	4630	4711	0	-23.6
	(120)	(116)	(114)	(115)	(110)	(110)	(119)	(115)		

Table 4. Over all performance of the hybrid ADRH 4

Entries	No. of trials	1994-95	1995-96	1996-97	Weighted mean	% Over checks
ADRH 4	19	5671	6081	6840	6209.6	-
		(117)	(116)	(115)		
ADT 42	19	4970	6060	6393	5781.1	7.4
		(116)	(117)	(119)		
CORH 1	19	4625	5356	4711	4849.1	28.1
		(112)	(114)	(115)		

MATERIALS AND METHODS

Five rice hybrids from the Rice Research Station, Ambasamudram *viz.*, ASRH 1,2,7,8 and 11, one from the Tamil Nadu Rice Research Institute, Aduthurai *viz.*, ADRH 4 and two from the Paddy Breeding Station, Coimbatore *viz.*, TNRH 8 and 13 were tested against high yielding rice variety, ADT 42 and commercial rice hybrid CORH 1 for their potential at Aduthurai, Ambasamudram, Coimbatore, Trurkuppam, Madurai, Killikulam, Bhavanisagar, and Tiruchirapalli. The multilocation trials (MLT) were conducted for three years from 1994-1997. The trials were conducted in a randomised block design replicated four times. The plot size was 20 sq.m. Single seedling /hill was planted in hybrids with a spacing of 20 x 10 cm, whereas two seedlings /hill were planted in variety with a spacing of 15 x 10 cm uniformly in all places. Recommended cultural practices were followed. Observations were recorded on grain yield(kg/ha) and growth duration(days).

RESULTS AND DISCUSSION

Among four short duration (110-120 days) hybrids *viz.*, ASRH1, ASRH 2, ADRH 4 and TNRH 7 tested against the high yielding variety ADT 42 and the commercial rice hybrid CORH 1 under MLT during 1994-1995 at Aduthurai, Ambasamudram, Coimbatore, Tirurkuppam, Madurai, Killikulam, Bhavanisagar the hybrid ADRH 4 (5671 kg/ha) was the best and gave higher yield than the variety ADT 42(4970) kg/ha) followed by the hybrid CORH 1(4625 kg/ha) (Table 1). Similarly, during 1995-1996, among five short duration hybrids *viz.*, ADRH4, ASRH8, 11, TNRH 11 and 13 tested against the check ADT 42 and the rice hybrid CORH1 at Aduthurai, Ambasamudram, Coimbatore, Madurai and Killikulam, the hybrids ADRH 4(6081 kg/ha), ASRH 11(6202 kg/ha) TNRH 11(5952 kg/ha) yielded better than ADT 42(6060 kg/ha) and they were identified as high yielding hybrids (Table 2). To test verify these findings, the same high yielding hybrids were tested against ADT 42 and CORH 1 during 1996-97 at Aduthurai, Coimbatore, Ambasamudram, Tirurkuppam, Bhavanisagar, Killikulam and Tiruchirapalli (Table 3) under MLT. The hybrid ADRH 4 (6840 kg/ha) was found to be superior. It is note worthy to mention that the hybrid ADRH 4 has proved its yield superiority over ADT 42 and CORH 1 through MLT conducted for three consecutive years (Table 4). On an average ADRH 4 has recorded 7.4 per cent increased yield over ADT 42 and 28.1 per cent over CORH 1.

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