

## MGR RICE (CORH)1 THE FIRST HYBRID RICE FOR TAMIL NADU

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### ABSTRACT

MGR (CORH 1 ) rice hybrid was developed using cytoplasmic genic male sterile line, maintainer line and restorer line (A/B/R). The parentage of this hybrid is IR 62829 A/IR10198-66-2R. This matures in 110 - 145 days, grows to a height of 75 cm and tillers profusely under a wider spacing of 25 x 10 cm. The average grain number is 150 per panicle and 1000 grain weight is 20 g. It gives one tonne more yield per hectare over IR 50. The grain is medium slender, straw coloured with white rice. This is best suited for May - June and December - January sowings in Tamil Nadu.

**KEYWORDS :** CORH-1, Hybrid Rice, Tamil Nadu

India attained self sufficiency in rice almost a decade back. To sustain the self sufficiency, the country will have to add around 30 million t in the next 10 years through various short and long term approaches. Exploitation of hybrid vigour is one of the approaches by which productivity could be increased in areas where the yield has already attained the potential level by use of conventional varieties. Since late seventies, China is exploiting the hybrid technology successfully to achieve impressive advances in production and productivity. Recognising the success of hybrid rice cultivation in China, the scientists of Paddy Breeding Station, Tamil Nadu Agricultural University, Coimbatore took up research on hybrid rice from 1979 - 1993 and released the first hybrid rice (CORH1) with the popular name MGR during January 1994 for commercial cultivation.

### MATERIALS AND METHODS

Out of six hybrids viz., TNRH1, TNRH2, TNRH3, TNRH4, TNRH5, and TNRH6 synthesised and evaluated the hybrid TNRH 1 found to be superior. This culture was developed through three line breeding system using cytoplasmic genic male sterile line, maintainer line and restorer line viz., IR 62829 A, IR 62829 B and IR 10198- 66-2R respectively. This culture entered the PYT stage during 1990. Its productivity was tested in adaptability trials viz., Multilocation trials Onfarm trails and National hybrid rice trials in comparison with IR 50 and Rasi (Checks) during 1991 - 93. This short duration hybrid is capable of giving one tonne more yield than IR 50.

### RESULTS AND DISCUSSION

The culture TNRH 1 was tested for its yield potential during *rabi* and *kharif* seasons from 1990 - 1992 at the Paddy Breeding Station, Coimbatore. It gave a mean yield of 5192 kg/ha. The mean increase over IR 50 was found to be 36.9 per cent. The MLT conducted during 1991 - 1993 at other research stations of Tamil Nadu, TNRH 1 registered a mean yield of 5638 kg/ha which was 20.0 per cent increased yield over IR 50. A total of 14 OFT was conducted during *kharif* 1992 in farmers fields in various parts of Tamil Nadu. The hybrid recorded a mean yield of 6083 kg/ha which was 16.2 and 15.0 per cent higher than IR 50 and CO 37 respectively in these trials. The results of OFT at 18 locations during *kharif* 1993 have also

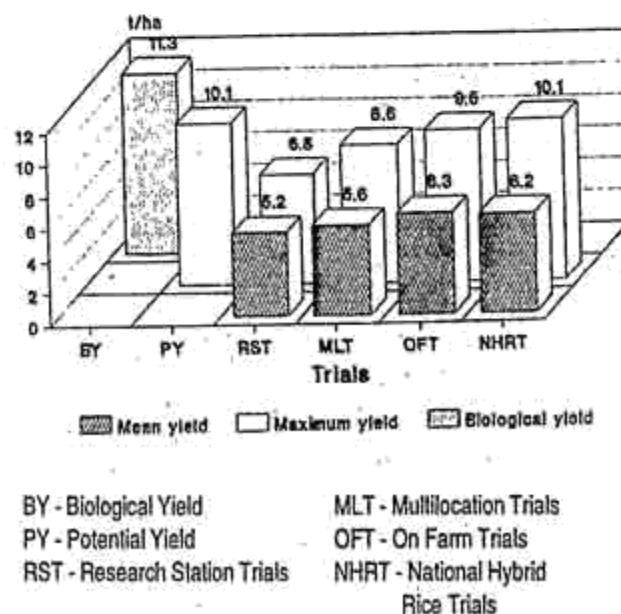


Fig.1. Biological Potential and average Yield of TNRH 1

Table 1. Overall performance of TNRH 1

Particulars	No. of Trials	TNRH.1	IR50	ASD18	ADT36	Co37	Rasi
Station Trials	4	5192	4632	3199	6497	-	-
MLT 1991 K	6	6134	4825	-	5518	-	-
MLT 1992 K	6	5240	4765	-	5040	-	-
MLT 1993 K	3	5441	4327	-	5900	-	-
OFT 1992 K Districts	14	6083	5233	-	-	5070	-
OFT 1993 K Districts	18	6323	5364	6235	-	-	-
NHRT K+R 1990-91 K	18	6181	-	-	-	-	5065
Grand Mean	69	6023	5075	5250	5633	5070	5065

Per cent over IR50 - 118.6  
 Per cent over ASD18 - 113.2  
 Per cent over ADT36 - 106.9  
 Per cent over Co37 - 117.2  
 Per cent over Rasi - 117.3

MLT : Multilocation trials

OFT : Onfarm trials

NHRT : National hybrid rice trials

K - Kharif

shown its superiority over IR 50 and ASD 18. The mean yield recorded by TNRH 1 in these trial is 6323 kg/ha representing 17.9 and 25.7 per cent increase over IR 50 and ASD 18 respectively.

The results from NHRT conducted outside Tamil Nadu during 1990 - 91 *kharif*, the hybrid surpassed the national check (Rasi) with a mean yield of 6181 kg/ha and an increase of 22.0 per cent. The overall performance of TNRH 1 under different trials is presented in Table 1. It recorded a mean grain yield of 6023 kg/ha, out yielding the checks IR 50 and Rasi by 18.6 and 17.3 per cent respectively. The biological yield of this culture was 11.3 tonnes comprising 6.0 tonnes of grain and 5.3 tonnes of straw (Fig.).

Table 2. TNRH1 (CORH.1) Rice Hybrid - Quality characteristics

Physical characteristics			
Milling - Endosperm	%	-	78.00
Husk	%	-	21.73
Premature grain	%	-	0.32
Polishing - White rice	%	-	84.00
Bran	%	-	13.43
Broken	%	-	3.77
Cooking characteristics (5 gm. of sample)			
Weight increase	(gm)	-	14.70
Volume increase	(ml)	-	24.80
Actual water absorption	(ml)	-	24.00
Time taken for cooking	(mt)	-	22
Chemical characteristics			
Moisture	%	(gm)	- 12.10
Ash	%	(gm)	- 0.95
Protein	%	(gm)	- 7.00

Table 3. Reaction to major diseases under field and controlled conditions

Entries	Coimbatore centre ( <i>Kharif</i> 1992)			Tirur centre ( <i>Kharif</i> 1992)		
	Controlled condition	Field condition		Field condition		
	Blast	Sheath rot	Brown spot	Blast	RTV	Brownspot
TNRH 1	7	0	3	1	MR	3
IR 62829A	9	NR	NR	NR	NR	NR
IR10198-66-2R	9	NR	NR	NR	NR	NR
ADT 36	0	1	5	0	MS	7
IR 50	7	1	3	5	MS	7

NR - Not recorded

MR - Moderately resistant

MS - Moderately susceptible.

Table 4. Reaction to major pests under field and controlled conditions

Entries	Coimbatore ( <i>Kharif</i> 1992)			Tirur ( <i>Kharif</i> 1992)		
	Green house condition			Field condition		
	BPH	GLH	WBPH	Gall midge	Stem borer	Whorl maggot
TNRH 1	5	1	5	3	3	5
IR 62829A	9	1	9	NR	NR	NR
IR10198-66-2R	9	3	9	NR	NR	NR
ADT 36	5	5	9	7	7	3
IR 50	9	5	9	5	7	5

BPH : Brown planthopper  
NR - Not recorded

GLH : Green leafhopper

WBPH : Whitebacked plant hopper

This culture is semi dwarf (75 cm) in stature and matures 110 - 115 days. It possesses high tillering ability producing upto 20 effective tillers per hill under a spacing of 25 x 10 cm. Pollen and spikelet fertility of this hybrid was 90 per cent. The average grain number is 150 per panicle and 1000 grain weight is 20 g. The grain is medium slender, straw coloured with white rice. Physical, cooking, chemical and organoleptic characters are good in all respects. (Table 2). It is moderately resistant to plant and leaf hoppers, sheath rot, brown spot and tungto under field condition (Table 3 and 4).

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## RESPONSE OF SUNFLOWER HYBRIDS TO NITROGEN AND PHOSPHORUS UNDER IRRIGATED CONDITION

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#### ABSTRACT

A field experiment was conducted with four hybrids viz., BSH1, IAHS1, KBSH1 and MSFH17 along with nitrogen and phosphorus at graded levels as 60, 90 and 120 kg N/ha; 60 and 90 kg P<sub>2</sub>O<sub>5</sub>/ha under irrigated conditions both in summer and *kharif* seasons of 1991-92 at the Agricultural Research Station, Bhavanisagar. The results indicated that the hybrid MSFH-17 performed better in all the parameter studied except oil content with 90 kg N and 60 kg P<sub>2</sub>O<sub>5</sub>/ha. The oil content was high in the hybrid BSH 1 and IAHS 1.

**KEYWORDS :** Nitrogen, Phosphorus, Sunflower Response

Sunflower serves as good substitute in the place of groundnut, wherever there is a considerable delay in the monsoon. Moreover, it is adapted to a wide range of soils (Singh *et al.* 1977). Exploitation of the yield potential of the presently available varieties would be possible with the adoption of suitable agro- technology. As there is practically very little information available regarding optimum requirement of nitrogen and

phosphorus for sunflower hybrids this study was conducted.

#### MATERIALS AND METHODS

The field experiment was carried out during summer and *kharif* seasons of 1991-92 at the Agricultural Research Station, Bhavanisagar on alfisol of sandy loam in texture having neutral p<sup>H</sup> of low fertility status of nitrogen (178 kg./ha), medium in available P (10.2 kg/ha) and K (208