

Rice breeding for salinity tolerance in Egypt

Balal M.S.

in

Clément G. (coord.), Cocking E.C. (coord.).
FAO MedNet Rice: Breeding and Biotechnology Groups: Proceedings of the Workshops

Montpellier : CIHEAM
Cahiers Options Méditerranéennes; n. 8(2)

1994
pages 25-26

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=CI020555>

To cite this article / Pour citer cet article

Balal M.S. **Rice breeding for salinity tolerance in Egypt**. In : Clément G. (coord.), Cocking E.C. (coord.). *FAO MedNet Rice: Breeding and Biotechnology Groups: Proceedings of the Workshops*. Montpellier : CIHEAM, 1994. p. 25-26 (Cahiers Options Méditerranéennes; n. 8(2))



<http://www.ciheam.org/>
<http://om.ciheam.org/>

Rice Breeding for Salinity Tolerance in Egypt

Mohamed Sayed Balal

Agricultural Research Center, Giza (Egypt)

Salinity is a major obstacle to the increase of rice production. In Egypt, salinity affected areas are more than 25% of the total rice cultivated area of the Northern part of the Nile Delta, besides the low quality water available in these areas. The main goal of rice breeding for salinity is to develop new high yielding varieties with salt tolerance ($EC_e > 5$ ds/m). These new varieties must have good characteristics such as blast resistance, early maturity, short stature and acceptable grain quality.

Breeding for salinity tolerance is conducted at Sirw Agric. Res. Station where the EC_e of the soil ranges from 5 to 10 and irrigation is done with reused water.

In 1992 the salinity tolerance nursery included:

□ Pedigree nursery

The material involved F2 and F3 bulk population and F4 and F5 lines as well as observational nursery (IRSSTON). The numbers of grown and selected entries are listed in *Table 1*.

Table 1. Volume of salinity tolerance nursery, Sirw 1992-1993

Nurseries	# Planted		# Selected		
	Crosses	Lines	Crosses	Plants	Bulk
F2	84	-	35	-	-
F3 (bulk)	48	-	32	391	-
F4	26	245	22	273	10
F5	17	160	10	-	8
OB (IRSSTON)	-	110	-	-	16
Total	175	515	99	664	34

□ Yield trials

Under replicated yield trials (preliminary, regional and final), 270 entries were evaluated for grain yield and other important traits. The most promising lines out of them are presented in *Table 2*.

Table 2 : Most promising strains included in 1992-1993 final test yield trials.

Entries	Yield (t/ha)			Blast reaction		Total duration	Plant height	Grain test	
	1992	1993	Mean	L	N	(days)	(cm)	Type	Amylose content
GZ 1368S-5-4	5.61	4.73	5.17	2	R	148	107	M	26.6
GZ 4255-6-3	6.41	3.80	5.11	2	R	140	100	Sh	18.6
GZ 4255-6-4	5.93	5.05	5.49	2	R	140	100	Sh	18.2
GZ4255-9-1	5.25	4.53	4.89	2	R	140	100	Sh	17.6
GZ 4255-6-3-2	3.65	5.60	4.63	2	R	140	100	Sh	17.5
Mean	5.37	4.74	5.06	2	R	141.6	101.4		
Giza 175	5.89	4.57	5.23	2	R	145	100	Sh	27.2
Giza 176	6.38	4.37	5.38	6	S	145	100	Sh	17.4
Giza 172	5.50	3.70	4.60	8	S	150	125	Sh	18.5
Mean	5.92	4.21	5.09	2-8	SR	146.6	108.3		