

()

*
()
(// : // :)

(x) x

()

x

(GCA)

GCA

()

GCA

(SCA)

IR50/

SCA

/

/

IR28/

x

:

(Singh, & Chaudhary, 1977; Farshadfar, 1997)

(Honarnejad, 1999;

Satyanarayana et al., 2000; Honarnejad & Tarang, 2001; Allahgholipour et al., 2005; Allahgholipour & Ali, 2006; Rahimsoroush & Tarang, 2006)

x

x

(Farshadfar, .1997)

.(Honarnejad, 1996b)

.(Singh & Chaudhary, 1997)

×

.(Ashok et al., 2000)

—

(Ramalingam et al., 1992; Honarnejad, 1994; Honarnejad, 1996a,b; Honarnejad & Tarang, 2001)

×

.(Muhan Kumar et al., 2000)

()
(Honarnejad, 1996a; Honarnejad, 1999; Honarnejad & Tarang, 2001)

.(Wu et al., 1986)

.(Honarnejad, 1996a)

%

.(Singh & Sharma, 1995)

.(Honarnejad, 1999)
(1983) Nematzadeh et al.

.(Bobby & Nadarajan, 1994)

.(Neerag et al., 1993)

.(Honarnejad, 1996a)

... :

.(Sardana & Bortankur, 1987)

×

.(Kaushik & Sharma, 1988)

(F₁)

×

×

×

.(Hosseini et al., 2005)

()

()

()

()

)

()

.(Rahimzadeh & Momeni, 2006)

(

()

()

×

()

(Singh & Sharma,

×

.1995)

(1957) Kempthorne

IR50 IR28

$$\sqrt{\frac{2\sigma_D^2}{\sigma_A^2}}$$

t

/ SAS

(1995) Ali et al.

×

×

×

/

(IR R)

/

(IR R)

(Allahgholipour et al., 2005)

×

IR28

IR50

GCA

×

GCA

(GCA)

GCA

IR28

GCA

GCA

(Honarnejad, 1999)

IR28

GCA

... :

GCA

GCA

.(Rahimzoroush & Moumeni, 2006)

() ×

											%			
/		/		/		/		/		/				
/	**	/	**	/	**	/	**	/	**	/	**	**		
/	**	/	**	/	**	/	**	/	**	/	*	**		
/	**		**	/	*	/	*	/	**	/	**	*	**	×
/	**	/	**	/	**	/	**	/	**	/	**	**	**	ns
/	**	/	**	/	**	/	**	/	**	/	**	ns	ns	
/	**	/	**	/	**	/	**	/	**	/	**	ns	ns	
/	ns	/	**	/	*	/	**	/	**	/	**	**	ns	×
/		/		/		/		/	**	/		/		
/		/		/		/		/		/		/		

()

: ns % % : ** *

(GCA)

											%								
/	ns	/	**	/	**	/	**	/	**	/	ns	/	**	/	**	/	*	IR	
/	**	/	**	/	*	/	ns	/	**	/	**	/	ns	/	**	/	ns	ns	IR
/	*	/	**	/	**	/	**	/	**	/	**	/	**	/	ns	/	ns	*	
/	ns	/	**	/	*	/	ns	/	**	/	**	/	ns	/	**	/	ns	*	
/	ns	/	**	/	ns	/	ns	/	**	/	**	/	**	/	**	/	ns	ns	
/		/		/		/		/		/		/		/		/		()	
/	ns	/	**	/	**	/	*	/	**	/	**	/	**	/	**	/	ns	**	
/	**	/	**	/	ns	/	ns	/	ns	/	**	/	**	/	**	/	*	**	
/	*	/	**	/	**	/	**	/	**	/	**	/	ns	/	**	/	**	ns	
/		/		/		/		/		/		/		/		/		()	

: ns % % : ** *

(SCA)

						%
/ ns	/ ns	/ ns	/ ns	/ ns		×
					IR	/
/ **	/ *	/ **	/ **	/ ns		×
					IR	/
/ **	/ ns	/ *	/ **	/ ns		×
					IR	/
/ *	/ ns	/ ns	/ ns	/ *		×
					IR	/
/ *	/ ns	/ **	/ ns	/ ns		×
					IR	/
/ **	/ ns	/ *	/ ns	/ ns		×
					IR	/
/ *	/ ns	/ ns	/ *	/ ns		×
					/	
/ *	/ *	/ **	/ ns	/ ns		×
					/	
/ *	/ *	/ *	/ ns	/ ns		×
					/	
/ ns	/ **	/ ns	/ *	/ ns		×
					/	
/ ns	/ **	/ *	/ **	/ ns		×
					/	
/ ns	/ ns	/ **	/ ns	/ ns		×
					/	
/ *	/ *	/ *	/ ns	/ ns		×
					/	
/ ns	/ ns	/ ns	/ ns	/ ns		×
					/	
/ *	/ *	/ ns	/ ns	/ ns		×
					/	
/	/	/	/	/		

: ns

% %

: ** *

(Honarnejad, 1996a; Rahimsorouh & Moumeni,
.2006)

GCA

GCA

GCA IR50

... :

(IR R)

(Ali et al., 1995;

.Allahgholipour & Ali, 2006)

(SCA)

IR50/

/ IR28/

/

/

/

/

(Honarnejad, 1994;

.()

SCA

.Satyanarayana et al., 2000)

IR50/

IR28/

.()

/

/

IR50/

IR28/

/

/

(Allahgholipour & Ali,

IR50/

IR28/

2006)

/

/

IR50/

SCA

/

(/ /)

GCA

گیرند. ارزیابی

GCA

.(Kaushik & Sharma, 1988)

.()

(/)

×

%									
/ AB	/ F	/ A	/ BCD	/ ABCDE	IR	/	×		
/ A	/ F	/ DEF	/ CD	/ F	IR	/	×		
/ AB	/ CDE	/ A	/ A	/ DEF	IR	/	×		
/ BC	/ F	/ A	/ BCD	/ A	IR	/	×		
/ BC	/ F	/ CDE	/ BCD	/ DEF	IR	/	×		
/ AB	/ E	/ A	/ BCD	/ CDEF	IR	/	×		
/ AB	/ E	/ CD	/ BCD	/ AB	/	/	×		
/ AB	/ E	/ EF	/ BCD	/ DEF	/	/	×		
/ AB	/ AB	/ DEF	/ BCD	/ ABC	/	/	×		
/ AB	/ F	/ BC	/ BCD	/ CDEF	/	/	×		
/ AB	/ A	/ EF	/ AB	/ EF	/	/	×		
/ AB	/ CDE	/ DEF	/ BCD	/ BCDE	/	/	×		
/ AB	/ CDE	/ BC	/ BCD	/ CDE	/	/	×		
/ AB	/ E	/ EF	/ BCD	/ ABCDE	/	/	×		
/ AB	/ DE	/ B	/ BCD	/ ABCDE	/	/	×		
/ DE	/ DE	/ DEF	/ ABC	/ CDE	IR				
/ E	/ E	/ B	/ BCD	/ BCDE	IR				
/ DE	/ BCD	/ DEF	/ BCD	/ ABCD					
/ CD	/ BC	/ F	/ BCD	/ DEF					
/ DE	/ AB	/ BC	/ BCD	/ ABCD					
/ AB	/ F	/ H	/ BCD	/ G					
/ BC	/ F	/ G	/ D	/ G					
/ AB	/ CDE	/ G	/ BCD	/ G					

()

%									
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	∞	/
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	()

REFERENCES

1. Ali, S.S., Jahanger, S., Jafri, H. & Butt, M. A. (1995). Diallel analysis for combining ability in rice. *Plant Breeding Abstracts*, 65(3), 369.

2. Allahgholipour, M. & Ali, A. J. (2006). Gene action and combining ability for grain yield and its component in rice. *Journal of Sustainable Agriculture*, 28(3), 39-53.
3. Allahgholipour, M., Hosseini, M., Rahimsoroush, H. & Sayadi, M. (2005). Study on general and specific combining ability in parental lines of hybrid rice using Line×Tester analysis. *Journal of Agricultural Science*, 15(3), 77-88. (In Farsi).
4. Ashok, A., Mohmed Sheriff, N. & Narayanan, S. L. (2000). Combining ability studies in sunflower (*Heliantus annus L.*). *Journal of Crop Research*, 20(3), 457-462.
5. Bobby, T. P. M. & Nadarajan, N. (1994). Genetic analysis of yield components in rice involving CMS lines. *Plant Breeding Abstracts*, 64(2), 217.
6. Farshadfar, E. (1997). *Application of biometrical genetics in plant breeding*. Razi University, Kermanshah, Vol. 1, 528 p. (In Farsi).
7. Honarnejad, R. (1994). Genetical characteristics and combining ability of six Iranian rice cultivars (*Oryza sativa L.*). *Iranian Journal of Agricultural Sciences*, 25(4), 31-50. (In Farsi).
8. Honarnejad, R. (1996a). Estimation of gene effects and combining ability of some quantitative characters of rice by diallel method. *Iranian Journal of Agricultural Sciences*, 27(2), 45-57. (In Farsi).
9. Honarnejad, R. (1996b). Study on combining ability and correlation among some morphological characters in six Iranian rice genotypes. *Seed and Plant*, 11(4), 31-50. (In Farsi).
10. Honarnejad, R. (1999). Evaluation of combining ability and gene effects in segregation generation of rice. *Journal of Science & Indus Agriculture*, 13(1), 53-65. (In Farsi).
11. Honarnejad, R. & Tarang, A. R. (2001). Gene effects in controlling quantitative characteristics in rice (*Oryza sativa L.*). *Iranian Journal of Agricultural Sciences*, 32(2), 263-273. (In Farsi).
12. Honarnejad, R., Tarang, A. R. & Sheikh-Hosseini, A. (1998). Genetic analysis of quantitative and qualitative characteristics in segregation population (F₂) of rice. *Journal of Agricultural Science & Technology & Natural Resources* 2(2), 17-29. (In Farsi).
13. Hosseini, M., Honarnejad, R. & Tarang, A. R. (2005). Gene effects, combining ability of quantitative characteristics, and grain quality in rice. *Iranian Journal of Agricultural Sciences*, 36(1), 21-32. (In Farsi).
14. Kaushik, R. P. & Sharma, K. D. (1988). Gene action and combining ability for yield and its components in rice under cold stress conditions. *Oryza*, 25, 1-9.
15. Kempthorne, O. (1957). *An introduction to genetic statistics*. John Wiley and Nordskog, Inc, Chapman and Hall. Ltd, London.
16. Mohan Kumar, H. D. Salimath, P. M., Patil, S. A., Chetti, M. B., Shenoy, V. V. & Vamadevaiah, H. M. (2000). Combining ability analysis for physico-biochemical traits influencing drought tolerance in rice. In: *Proceedings of the International Rice Research Conference*, 31 Mar.–3 Apr., Los Banos, Laguna, Philippines.
17. Neerag, K., Chandra, S. C. & Kulshreshtha, N. (1993). Triple test cross analysis for yield components in rice (*Oryza sativa L.*). *Indian Journal of Genetic and Plant Breeding*, 53(3), 143-246.
18. Nematzadeh, Gh. A., Vahabian, M., Khajenoori, A. & Abbaskhani Davanlo, H. (1983). Gene effects and combining ability of qualitative and quantitative traits in rice. In: *Proceedings of the First Iranian Rice Congress*. Gachsaran, Kohgiluyeh & Boyerahmad. (In Farsi).
19. Rahimsoroush, H. & Moumeni, A. (2006). Genetic dissection of some important agronomic characters in rice using Line×Tester analysis. *Journal of Agricultural Science & Technology & Natural Resources*, 10(1), 177-188. (In Farsi).
20. Ramalingam, J., Nadarajan, N., Rangasamy, P. & Vanniarajan, C. (1992). Genetic analysis of fertility restoration in hybrid rice (*Oryza sativa L.*). *Annals of Agricultural Research*, 13(3), 221-223.
21. Sardana, S. & Bortankur, D. N. (1987). Combining ability for yield in rice. *Oryza*, 24, 14-18.
22. Satyanarayana, P. V., Reddy, M. S. S., Kumar, I. & Madhuri, J. (2000). Combining ability studies on yield and yield components in rice. *Oryza*, 57, 22-25.
23. Singh, R. K. & Chaudhary, B. D. (1977). *Biometrical methods in quantitative genetic analysis*. Kalyani Publication, New Delhi, 304p.
24. Singh, N. K. & Sharma, V. K. (1995). Components of genetics variation in yield traits of rice. *Plant Breeding Abstracts*, 65(2), 201.
25. Wu, S. T., Hsu, T. H., Sung, H. & Theeng, F. S. (1986). Effect of selection on hybrid rice populations in the first crop season at different locations. II. Correlations and heritability values for agronomic characters in the F₂. *Journal of Agriculture and Forestry*, 34-35(1, 2), 77-88.

