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(// : // :)

F₁

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SCA GCA

(Singh & Chaudhary, 1985)

Hosseini et al. .

(2002)

(Can et al., 1997)

(1998) Azad et al.

(2002) Sadeghi et al.

(1998) Kiyanosh & Abdemishani

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(2004) Bagheri et al.

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IR58 ×

(1991) Hoang & Long

F₂

(1991) Bui & Tuan

DOS Hayman

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F₁

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(Scshu, 1988)

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(/)

F

(/)

Hayman (1956b) Griffing

(1956a, 1956b) Griffing

(1954a)

(/)

GCA

(/)

SCA

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(

Hayman

t

(1954a, 1954b)

(/)

H₀ : b = 1

(gr)	(gr)	(mm)	(mm)				(cm)	(mm)	(cm)	(cm)		
/ c	/ a	/ b	/ b	/ d	/ c	/ b	/ a	/ c	/ b	/ c	/ d	
/ c	/ d	/ c	/ a	/ c	/ b	/ b	/ a	/ c	/ a	/ b	/ b	
/ c	/ b	/ a	/ b	/ b	/ a	/ b	/ a	/ a	/ b	/ c	/ c	
/ b	/ d	/ c	/ a	/ c	/ d	/ b	/ b	/ c	/ c	/ a	/ d	
/ a	/ c	/ b	/ b	/ a	/ b	/ a	/ c	/ b	/ c	/ d	/ a	

($P \leq /$)

()

g_i

GCA

SCA

g_i

(Hosseini et al., 2002; Kiyanoosh, 2000; Sadeghi et al.,2002)

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g_i

(g_i)

(g_i)

(g_i)

(g_i)

g_i

g_i

g_i

g_i

g_i

... :

MS												
(gr)	(gr)	(mm)	(mm)					(cm)	(mm)	(cm)	(cm)	
/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **
/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	GCA
/ **	/ **	/ ns	/ **	/ **	/ **	/ ns	/ **	/ **	/ **	/ **	/ **	SCA
/ ns	/ ns	/	/ ns	/ ns	/ ns	/ ns	/ ns	/ ns	/ ns	/ **	/ ns	/ ns
/	/	/	/	/	/	/	/	/	/	/	/	
/	/	/	/	/	/	/	/	/	/	/	/	%CV

: ns . : ** *

(g_i)

(gr)	(gr)	(mm)	(mm)					(cm)	(mm)	(cm)	(cm)	
/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ *	/ ns	/ **	/ **
/ **	/ **	/ **	/ **	/ **	/ ns	/ ns	/ ns	/ ns	/ **	/ *	/ **	/ **
/ **	/ *	/ **	/ ns	/ ns	/ **	/ ns	/ **	/ **	/ **	/ **	/ **	/ **
/ ns	/ **	/ **	/ *	/ **	/ **	/ *	/ **	/ *	/ *	/ *	/ **	/ **
/ **	/ **	/ ns	/ *	/ **	/ ns	/ **	/ **	/ **	/ **	/ *	/ **	/ **
/	/	/	/	/	/	/	/	/	/	/	/	SE (g_i)

: ns . : ** *

Griffing

(1956b)

$$\delta_D^2 = \delta_{SCA}^2, \delta_A^2 = 2\delta_{gca}^2$$

$$h^2 = \frac{\delta_A^2}{\delta_P^2}$$

$$\frac{MS(GCA)}{MS(SCA)}$$

(S_{ij})

SCA

$$\frac{MS(GCA)}{MS(SCA)}$$

g_i
 S_{ij}

S_{ij}

×

(2000) Kiyanosh

Mohammad- (1998) Kiyanosh & Abdemishani

×

(1993) Gravois & McNew (1998) salehi et al.

H₂ H₁ F D

(S_{ij})

(gr)	(gr)	(mm)	(mm)			(cm)	(mm)	(cm)	(cm)		
/ **	/ **	/ *	/ **	/ *	/ *	/ **	/ *	/ **	/ ns	/ **	×
/ ns	/ **	/ ns	/ *	/ **	/ *	/ ns	/ **	/ ns	/ *	/ **	×
/ ns	/ **	/ *	/ ns	/ **	/ ns	/ **	/ **	/ ns	/ **	/ **	×
/ **	/ *	/ **	/ ns	/ **	/ ns	/ **	/ **	/ ns	/ **	/ **	×
/ *	/ **	/ **	/ *	/ ns	/ ns	/ **	/ ns	/ *	/ *	/ **	×
/ ns	/ **	/ **	/ **	/ **	/ *	/ **	/ **	/ *	/ **	/ **	×
/ **	/ **	/ ns	/ **	/ **	/ **	/ **	/ **	/ ns	/ *	/ **	×
/ *	/ **	/ ns	/ **	/ ns	/ **	/ **	/ *	/ ns	/ **	/ **	×
/ **	/ **	/ *	/ **	/ **	/ **	/ **	/ ns	/ *	/ *	/ *	×
/ **	/ ns	/ **	/ **	/ **	/ ns	/ *	/ **	/ **	/ **	/ *	×
/	/	/	/	/	/	/	/	/	/	/	SE (S _{ij})

: ns .

: ** *

SCA GCA

()					(h _N ²)	(h _B ²)			$\frac{MS(GCA)}{MS(SCA)}$
↑	×	↓	↑	/	/	/	/	/	ns
↓	×			/	/	/	/	/	ns
↑	×	↑		/	/	/	/	/	**
↓	×	↓		/	/	/	/	/	ns
↑	×	↑		/	/	/	/	/	*
↓	×	↓		/	/	/	/	/	ns
	×			/	/	/	/	/	**
	×			/	/	/	/	/	**
	×			/	/	/	/	/	*
↑	×	↓	↑	/	/	/	/	/	ns
↓	×			/	/	/	/	/	ns
↑	×			/	/	/	/	/	ns
↓	×	↓	↑	/	/	/	/	/	ns
	×			/	/	/	/	/	ns
	×			/	/	/	/	/	ns

: ns .

: ** *

F

$H_0 : b = 1$

(D)

$(H_2 - H_1)$

F

()

$\frac{H_2}{4H_1}$

$\left(\sqrt{\frac{H_1}{D}}\right)$

(

/

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/

$U=V= /$

/

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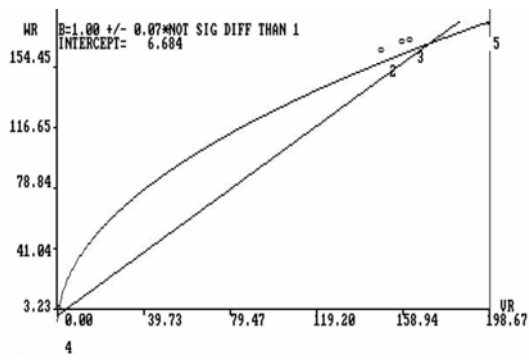
$\frac{H_2}{4H_1}$

$\left[\frac{\sqrt{(4DH_1)+F}}{\sqrt{(4DH_1)-F}}\right]$

()

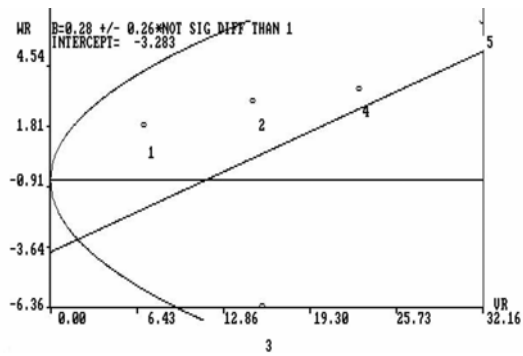
(gr)	(gr)	(mm)				(cm)	(mm)	(cm)	(cm)		
/	/	/	/	/	/	/	/	/	/	/	D
/	/	/	/	/	/	/	/	/	/	/ ns	F
/	/	/	/	/	/	/	/	/	/	/	H ₁
/	/	/	/	/	/	/	/	/	/	/	H ₂
/	/	/	/	/	/	/	/	/	/	/ ns	\hat{h}_2
/	/	/	/	/	/	/	/	/	/	/	Error
/	/	/	/	/	/	/	/	/	/	/	$\sqrt{\frac{H_1}{D}}$
/	/	/	/	/	/	/	/	/	/	/	$\frac{H_2}{4H_1}$
/	/	/	/	/	/	/	/	/	/	/	$\left[\frac{\sqrt{(4DH_1)+F}}{\sqrt{(4DH_1)-F}}\right]$

Wr
() /



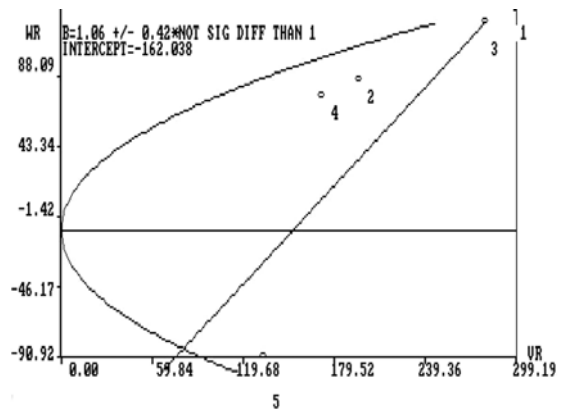
()
()

Wr
() /



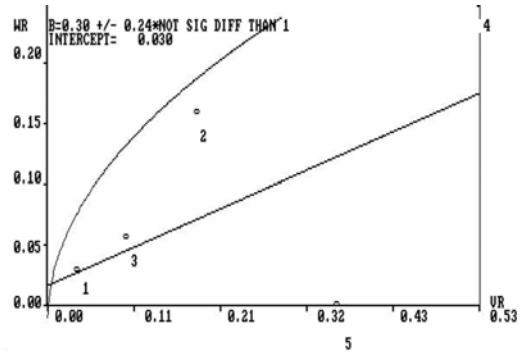
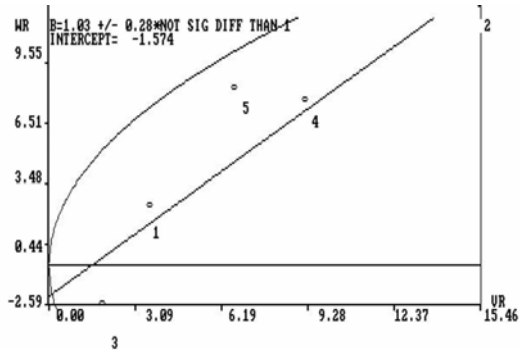
()

Wr
() /



W_r
()

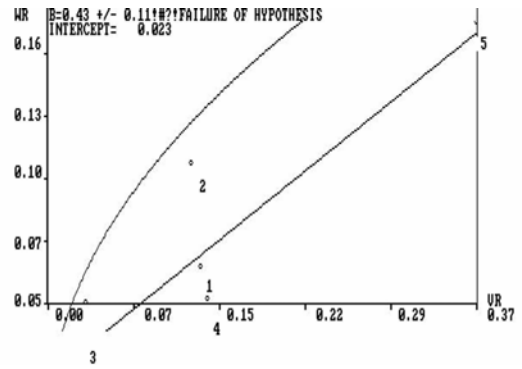
W_r
()



GCA

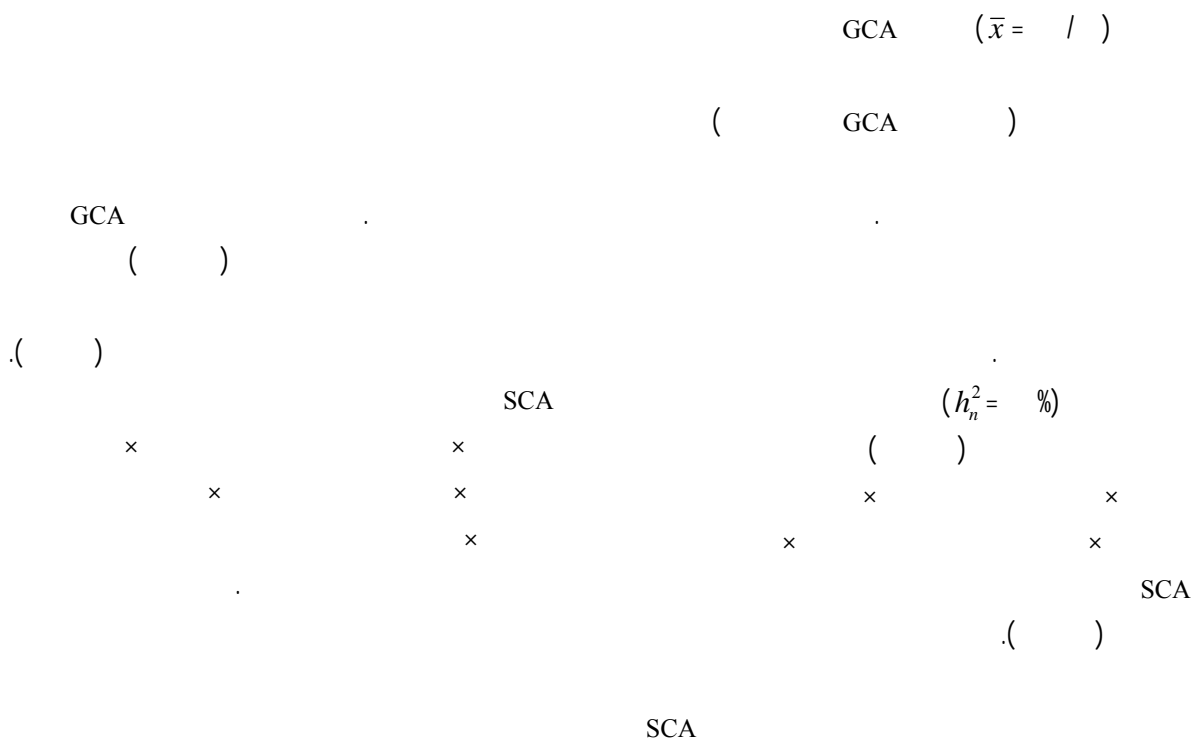
SCA

F₁



(Gravois & McNew, 1993)

W_r
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REFERENCES

1. Azad, R., Honarnejad, R. & Nematzadeh, G. (1998). Estimation of combining ability, heritability and heterosis of traits in rice cultivars by diallel cross. In: *Proceedings of 5th Iranian Congress of crop production and plant Breeding*. Karaj. Iran. P. 53.
2. Bagheri, M. M., Asad, M. T., Pakneyat, H. & Nematzadeh, G. (2002). Investigation of combining ability and heterosis traits in rice cultivars. In: *Proceedings of the 7th Iranian crop Sciences congress*. Karaj. Iran. P. 348.
3. Bagheri, N., Norozi, M. & Arefi, H. (2004). Detection of gene effects panicle length and plant height of rice in IR58 x Tarom-mahalli cross. *Journal of Agricultural Sciences and Natural Resources of Khazar*. 2(2), 68-78. (In Farsi)
4. Bui, C. B. & Tuan, T. M. (1991). Genetic studies in the f2 of crosses for high grain quality. *International Rice Research Newsletter*, 16 (3), 11.
5. Can, N. D., Nakamura, S. & Yoshid, T. (1997). Combining ability and genotype x environment interaction in early maturing grain sorghum for summer seeding. *Jan J Crop Sci*, 66, 698-705.
6. Gravois, K. A. & McNew, R. W. (1993). Combining ability and heterosis in U.S. southern long-grain rice. *Crop Sci*, 33, 83-86.
7. Griffing, B. (1956a). A generalized treatment of the use of diallel crosses in quantitative inheritance. *Heredity*, 10, 31-50.
8. Griffing, B. (1956b). Concept of general and specific combining ability in relation to diallel crossing systems. *Aust J Biol Sci*, 9, 463-493.
9. Hayman, B. I. (1954a). The analysis of variance of diallel tables. *Biometrics*, 10, 235-244.
10. Hayman, B. I. (1954b). The theory and analysis of diallel crosses. *Genetics*, 39, 789-809.
11. Hoang, V. p. & Long, T. D. (1991). Estimates of combining ability of some rice varieties in diallel crossing systems. *International Rice Research Newsletter*, 16 (3), 9.
12. Hosseni, M., Honarnejad, R. & Torang, E. (2002). Estimation of gene effect and combining ability of some of rice quantitative traits by diallel cross. In: *Proceedings of the 7th Iranian crop Sciences congress*. Karaj. Iran. P. 382.
13. Kiyanosh, G. (2000). Investigation of combining ability, estimation of heterosis and correlation of some of important traits in rice. In: *Proceedings of the 6th Iranian congress of crop production and Plant Breeding*. Babolsar. Mazandaran University. PP. 128-129.

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14. Kiyanosh, G. & Abdemishani, S. (1998). Investigation of genes effects and heritability of some of important traits in rice by diallel cross. In: Proceedings of *the 5th Iranian Congress of crop production and plant Breeding*. Karaj. Iran. P. 569.
15. Mohammad-salehi, M. S., Vojdani, P. & Torang, E. (1998). Investigation and detection combining ability of rice cultivars by diallel cross. In: Proceedings of *the 5th Iranian Congress of crop production and plant Breeding*. Karaj. Iran. PP. 78-79.
16. Sadeghi, S. M., Allahegholipoure, M. & Mohammad-salehi, M. S. (2002). Detection of general and specific combining ability of rice cultivars by diallel cross. 2002. In: Proceedings of *the 7th Iranian crop Sciences congress*. Karaj. Iran. P. 413.
17. Scshu, D. V. (1988). Standard evaluation system for rice. The International Rice Testing Program. The International Rice Research Institute. Los Banos. Philippines. P. 1-54.
18. Singh, R. K. & Chaudhary, B. D. (1985). *Biometrical Methods in Quantitative Genetic Analysis*. Kalyani Pub., Ludhiana, New Delhi, Revised Ed. 300p.

