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Comet Parade

	(Harm)	(MP)	(STI)	(GMP)
(DRI)		(SSI)	(TOL)	
MP STI GMP				

Harm

Amica Opera Parade

Lethbridge Landrace J98/102/51/5

() :

(*B. campestris* L.)

(*Brassica napus* L.,)

(*B. juncea* L.)

(*B. rapa* L., or

2. Indian Mustard

1. Rapeseed

E-mail:m_jmoghaddam@yahoo.com

: : *

(Bhowmik, 2003)

(Olsson, 1960)

)

(

(Kimber & McGregor, 1995)

(Ghatak et al., 1992 ; Sharma, 1994)

(Bhowmik, 2003)

(1978a) Richards .

()

(Woods et al., 1991)

(*B. carinata* L.)

(1983) Kondra et al. .

Kumar &)

(Singh,1998

(Lewis &

.Thurling, 1994)

(1993) Fernandez

(1975) Tayo & Morgan .

(STI)

(1981) Rosielle & Hamblin

(MP)

(TOL)

-
1. Stress Tolerance Index
 2. Tolerance
 3. Mean Productivity

(Morrisson & Stewart, 2002; McGregor, 1981)

(1978) Fischer & Maurer
(SSI)

(Maguire, 1962)

$$G_{\max} (\%) = n_g \times 250^{-1} \times 100$$

$$GRI (\%/d) = \sum_{i=1}^8 \left[\frac{(G_i - G_{i-1})}{i} \right]$$

(1987) Bidinger et al. .
(DRI)

i n_g :
G_i
G_{i-1}

()

() Nkobilbao

Opera Parade () Ebonite

Regent () Hyola 401 Comet Amica

J98/102/51/5 Bard-1 Westar

Lethbridge Landrace

Tobin Rainbow Goldrush

±

(/ /)

NMR

(Michel & Kaufman, 1973)

%

(Gmax)

(GRI)

5. Nuclear Magnetic Resonance

-
1. Stress Susceptibility Index
 2. Drought Response Index
 3. Maximum Germination
 4. Germination Rate Index

Rainbow
 /)
 .(/

$$\begin{aligned} & (OY_s) & (OY_p) \\ & (O\bar{Y}_p) & \\ & & (O\bar{Y}_s) \\ & & : \end{aligned}$$

(Rao & Dao, 1987; Richards, 1978a)
 (Bouslama & Schapauch, 1984 ;
 Froozan, 1997)

$$\begin{aligned} MP &= (OY_s + OY_p)/2 \\ GMP &= \sqrt{(OY_s \times OY_p)} \\ Harm &= \frac{2 \times (OY_s \times OY_p)}{(OY_s + OY_p)} \end{aligned}$$

Hyola401
 Tobin Bard-1 J98/102/51/5
 Tobin

$$\begin{aligned} TOL &= (OY_p - OY_s) \\ SSI &= \frac{[1 - (OY_s/OY_p)]}{SI} \\ SI &= [1 - (O\bar{Y}_s/O\bar{Y}_p)] \\ STI &= \frac{(OY_s \times OY_p)}{(O\bar{Y}_p)^2} \\ OY_s &= a + b OY_p + c FL + DR + E \end{aligned}$$

/)
 . (/

$$(\sigma^2) \quad E$$

Parade
 Westar Hyola401

$$\begin{aligned} & : & (OY_s) \\ & (FL) & (OY_p) \\ & & (DR) \end{aligned}$$

Tobin Goldrush

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Regent Opera Comet Parade
 Tobin Goldrush

Comet Parade
 Regent Ebonit

(/ /)
 Regent

Landrace Bard-1

Goldrush

Bard-1

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(/)

Letbridge Opera
Rainbow

(/ /)
(/) (/)

(Singh et al., 1987) (Sana et al., 2003)

(B. alba L.)
(Abou El-Nasr et al., 2006; Labana et al., .1987)

()

Opera Amica Parade Comet

Parade Comet Amica Opera
(/) NKbilbao

Opera Parade (Parade Comet
Ebonite Amica / / /
Bard-1

Landrace
(/)
Bard-1

(Woods et al., 1991; Oram et al. 2005)

() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()	() ()
/ a	/ bc	/ a	/ b	/ c	/ ab	/ c	/ ab	/ a	/ a	/ d	/ c		Nk bilbao
/ a	/ ab	/ a	/ bc	/ ab	/ ab	/ a	/ a	/ a	/ b	/ a	/ a		Parade
/ a	/ a	/ a	/ a	/ ab	/ a	/ a	/ ab	/ a	/ a	/ bc	/ bc		OPera
/ a	/ bc	/ a	/ b	/ c	/ ab	/ b	/ abc	/ a	/ b	/ bc	/ ab		Ebonite
/ a	/ ab	/ a	/ bc	/ abc	/ bc	/ b	/ ab	/ bc	/ d	/ e	/ de		Amica
/ a	/ ab	/ a	/ d	/ ab	/ cd	/ a	/ abc	/ c	/ d	/ ab	/ a		Comet
/ a	/ c	/ a	/ d	/ ab	/ d	/ b	/ c	/ bc	/ e	/ e	/ e		Hyola401
/ a	/ bc	/ a	/ bc	/ a	/ abc	/ a	/ ab	/ b	/ c	/ cd	/ abc		Regent
/ a	/ c	/ a	/ c	/ bc	/ d	/ b	/ bc	/ bc	/ d	/ d	/ cd		Westar
/ a	/ ab	/ ab	/ b	/ b	/ ab	/ a	/ a	/ a	/ b	/ b	/ c		J98/102/51/5
/ ab	/ b	/ a	/ b	/ b	/ b	/ a	/ a	/ a	/ b	/ a	/ a		Bard-1
/ ab	/ a	/ b	/ b	/ a	/ a	/ a	/ a	/ a	/ a	/ a	/ a		Landrace
/ a	/ a	/ ab	/ a	/ a	/ a	/ a	/ a	/ a	/ a	/ b	/ b		Lethbridge
/ a	/ a	/ b	/ b	/ a	/ a	/ a	/ a	/ b	/ b	/ a	/ a		Goldrush
/ a	/ a	/ a	/ a	/ b	/ a	/ b	/ b	/ a	/ a	/ b	/ ab		Rainbow
/ a	/ ab	/ b	/ b	/ ab	/ a	/ ab	/ ab	/ c	/ c	/ b	/ b		Tobin
/ a	/ ab	/ a	/ a	/ b	/ a	/ b	/ b	/ a	/ a	/ a	/ a		
/ b	/ a	/ b	/ c	/ a	/ b	/ a	/ a	/ a	/ a	/ ab	/ ab		
/ a	/ b	/ b	/ b	/ a	/ b	/ a	/ b	/ b	/ b	/ b	/ b		

Comet Parade
 Opera
 Amica Lewis & Thurling
 Letbridge J98/102/51/5 (1994)

(Richards & Thurling, 1979b)

Opera Harm MP STI GMP
 Letbridge Parade
 SSI TOL Goldrush
 Hyola401 Comet DRI
 Rainbow Bard-1
 Harm MP STI GMP
 SSI TOL

() DRI

DRI	STI	SSI	TOL	Harm	GMP	MP	OY _p	OY _s	
/	/	/	/	/	/	/	/ ^a	/ ^{bc}	Nk bilbao
/	/	/	/	/	/	/	/ ^{ab}	/ ^{ab}	Parade
/	/	/	/	/	/	/	/ ^{abc}	/ ^a	OPera
/	/	/	/	/	/	/	/ ^{a-d}	/ ^{bc}	Ebonite
/	/	/	/	/	/	/	/ ^{abc}	/ ^{ab}	Amica
/	/	/	/	/	/	/	/ ^{bcd}	/ ^{ab}	Comet
/	/	/	/	/	/	/	/ ^d	/ ^c	Hyola 401
/	/	/	/	/	/	/	/ ^{bcd}	/ ^{bc}	Regent
/	/	/	/	/	/	/	/ ^{cd}	/ ^c	Westar
/	/	/	/	/	/	/	/ ^a	/ ^a	J98/102/51/5
/	/	/	/	/	/	/	/ ^b	/ ^b	Bard -1
/	/	/	/	/	/	/	/ ^a	/ ^a	Landrace
/	/	/	/	/	/	/	/ ^a	/ ^a	Lethbridge
/	/	/	/	/	/	/	/ ^a	/ ^a	Goldrush
/	/	/	/	/	/	/	/ ^a	/ ^a	Rainbow
/	/	/	/	/	/	/	/ ^a	/ ^{ab}	Tobin
/	/	/	/	/	/	/	/ ^{ab}	/ ^a	
/	/	/	/	/	/	/	/ ^a	/ ^a	
/	/	/	/	/	/	/	/ ^b	/ ^b	

(Comet TOL
OY_s

(2004) Zeinaly Khanghah et al.

Parade Opera

(Bidinger et al., 1987; Abebe et al., 1998)

Amica

NKbilbao

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