in stability for the characters among the genotypes was due to both the linear and deviations from the linear function.

The mean performance ($\bar{x}$), the regression coefficient (b), the mean squared deviations (S^2d) are presented in Table 2. Among the entries VG 77 recorded the highest mean pod yield. But, the genotype x environment interaction was not significant for this character. However varying levels of GxE interactions, have been reported by Habib et al., 1986. For shelling percentage, VG 77 (74.73) JL 24 (73.26) and J1 (73.73) recorded higher mean performance. Deviation form linear function was significant only for Co 1, BS 8 and ALG 6 had linear response equal to unity (b=0.93). JL 24 was the most stable genotype for this character.

The highest hundred pod weight was recorded by VG77 (116.43) followed by JL24 (107.25). TMV 12 (b=1.04) was the most responsive genotype and VG55 (S^2d=2.74) was the most stable genotype. Among the entries VG 77 (49.86g) and JL 24 (44.78g) had higher kernel weights. BS 8 and ALG 6 are the most responsive genotypes (b=1.17 and 1.18). J1 was considered as the most stable genotype for hundred kernel wight. VG77 exhibited high mean performance for all the four characters. Stable performance for different characters were observed in different genotypes viz,. shelling percentage (JL24), hundred pod weight (VG 55) and hundred kernel weight (J1)

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COMBINING ABILITY FOR QUANTITATIVE TRAITS IN TRITICALE UNDER RAINFED CONDITIONS.

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ABSTRACT

A line x tester (6 x 3) analysis, involving morphologically diverse females of triticale, was carried out. JNIT-78 was found to be best general combiner for days to maturity, number of grains per ear and grain weight per ear where as JNIT-73 was best for ear length and number of spikelets per ear. The other best general combiners were JNK6T-233 for peduncle length, 1000- grain weight; and UPT-78269 for plant height and number of ears per plant. F1 crosses showed significant specific combining ability effects for few characters viz., days to maturity (UPT-78269 x JNK6T-229), peduncle length (JNK6T-233 x JNK6T-229), and 1,000-grain weight (JNK6T-233 X JNIT-67). These crosses represented the combination of average x poor and best x poor general combiners.

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Table 1. Analysis of variance for quantitative traits in triticale

Source of variation	d.f.	Days to maturity	plant height	Peduncle length	No.of ears per plant	Ear length	No. of spikelets/ear	No. of grains per ear	1,000 - grain weight	Grain weight per ear	Grain yield per plant
Replications	2	13.57	5.97	4.91	0.28	0.90	1.07	35.14	1.57	0.12	1.11
Parents	8	40.73**	554.66**	28.90**	0.99**	7.81**	24.83**	124.31**	14.49**	0.37**	1.64
Hybrids	17	27.65**	295.31**	11.50**	0.94**	3.53**	12.39**	78.03**	28.82**	0.12*	2.51
Parents v/s Hy.	1	11.41*	520.56**	55.24**	14.94**	14.34**	41.10**	170.51**	134.30**	0.89**	51.77**
Males	2	50.13**	3.39	2.74	2.83*	0.90	0.56	7.97	9.51	0.03	2.03
Females	5	64.69**	968.77**	28.82**	1.12	11.12**	40.62**	198.93**	78.62**	0.28**	2.50
Female x male	10	4.64	16.97	4.59*	0.42	0.27	0.63	31.60	7.77	0.06	0.91
Error	52	2.62	20.63	1.95	0.34	0.54	2.35	31.83	3.82	0.06	1.23
GCA	-	0.69	8.35	0.15	0.01	0.10	0.35	1.40	0.63	0.001	0.02
SCA	-	0.67	-1.22	0.88	0.03	-0.09	-0.57	-0.07	1.32	-0.001	-0.10

* P ≤ 0.05; ** P ≤ 0.01

Table 2: General combining ability effects for quantitative traits in triticale

Parents	Day's to maturity	Plant height	Peduncle length	No. of ears per plant	Ear length	No. of spiklets per ear	No. of grains per ear	1,000 grain weight per ear	Grain weight per ear	Grain yield per plant
Females										
UPT-78269	0.69	-10.55**	-3.01**	0.53**	-0.63**	-1.20*	3.43	-4.87**	-0.14	0.02
TL-419	-0.31	-8.33**	-0.79	0.19	0.50*	-0.93	-2.02	-0.38	-0.11	0.20
JNIT-73	5.02**	7.87**	0.79	0.02	1.57**	2.67**	0.78	-0.40	0.03	0.31
JNIT-78	-2.31**	-3.70*	0.95*	-0.32	-1.03**	-1.47**	6.87**	-0.18	0.28**	0.70
JNK6T-230	-1.76**	-1.97	-0.12	0.04	-0.66**	-1.91**	-6.24**	1.76**	-0.17	-0.63
JNK6T-233	-1.31*	16.67**	2.19**	-0.45*	1.26**	2.40**	-2.82	4.06**	0.12*	-0.61
Males										
JNIT-67	0.91*	-0.47	-0.16	0.05	-2.26	-0.13	0.46	-0.78	-0.03	-0.19
JNK6T-231	-1.93**	0.09	0.45	0.37**	0.16	-0.07	0.30	0.12	-0.02	0.39
JNK6T-229	1.02**	0.39	-0.29	-0.42**	0.10	0.20	-0.76	0.66	0.04	-0.19
S.E.Females. (+)	0.54	1.51	0.47	0.20	0.25	0.51	1.88	0.65	0.08	0.37
S.E. Males (+)	0.38	1.07	0.33	0.14	0.17	0.36	1.33	0.46	0.06	0.26

*P ≤ 0.05; ** P ≤ 0.01

Table 3 : Crosses showing the desirable significant sca effects for three quantitative traits in triticale under rainfed conditions.

Crosses	Days to maturity	Peduncle length	1000-grain weight
JNK6T-233 X JNIT-67	-0.80	-0.39	2.73*
UPT-78269 X JNK6T-229	-1.91*	-0.82	0.06
JNK6T-233 X JNK6T-229	1.09	1.85*	-1.24
S.E. (Sij) (±)	0.39	0.81	1.13

* P ≤ 0.05; ** P ≤ 0.01 (Note : Besides above three crosses other showed non significant sca effects for any of the traits.)

The genetic variability may be exploited through conventional breeding methods for future improvement. Combining ability analysis in very informative in determining the prepotency of parents for exploitation in breeding programme. Therefore, a line x tester (6 x 3) analysis involving morphologically diverse parental lines selected recently from the improved populations of triticale, was carried out under rainfed conditions in order to identify superior parents and hybrids.

MATERIALS AND METHODS

Six female parents, UPT-78269, TL-419, JNIT-73, JNIT-78, JNK6T-230 and JNK6T-233; three pollen parents JNIT-67, JNK6T-231 and JNK6T-229 and 18 hybrids among them formed the materials for this study. The parental materials was highly homozygous and morphologically diverse for the characters under study. The materials were grown in a randomized block design, with three replications under rainfed conditions at Indore. Three metre long rows were spaced 23cm. apart with a 10cm. distance between plants within the row. Observations on five randomly selected competitive plants from each row were recorded on plant height (cm), peduncle length (cm), number of ears per plant, ear length (cm), number of spikelets per ear, number of grains per ear, grain weight per ear (g), grain yield per plant (g) and 1,000-grain weight(g) where as days to maturity was determined on plot basis. the analysis of combining ability was done according to procedure of Kempthorne (1957).

RESULTS AND DISCUSSION

There were significant differences among parents for all the characters under study except grain yield which indicated existence of genetic diversity in parental materials for all character except grain yield (Table-1). Since the parents were selected from improved populations available for breeding programme, the lack of genetic variability for grain yield in these parents was expected as pointed out by Vela (1974). Variations among crosses were found to be significant for all the characters except grain yield. This indicated that the genetic variability in parents was manifested in their crosses. Differences between parents and crosses were significant for all characters which indicated presence of heterosis for all characters. Variance due to general combining ability was larger than the specific combining ability for days to maturity, plant height, ear length, number of spikelets per ear, number of grains per ear, grain weight per ear and grain yield per plant which indicated that the additive genetic variance was considerably predominant for these traits. For the remaining characters, non-additive genetic variance was important, because variance due to specific combing ability was pre-dominant for these traits. This indicated that both the additive and non-additive variance were important in the inheritance of yield and its components in triticale under rainfed conditions.

JNIT-78 was found to be the best general combiner for days to maturity, number of grains per ear and grain weight per ear whereas JNIT-73 was found to be best general combiner for ear length and spikelets number per ear. The other best general combiners were JNK 6T-233 for peduncle length, 1,000-grain weight, ear length and number of spikelets per ear and UPT-78269 for plant height and number of ears per plant (Table-2)

The F1 crosses, UPT-78269 x JNK6T-229, JNK6T-233 x JNK 6T-229 and JNK 6T-233 x JNIT-67 showed significant specific combining ability effects respectively to days to maturity, peduncle length and 1,000-grain weight. These best crosses as regards high sca effects represented combination of av-

crage x poor (days to maturity) and best x poor (peduncle length and 1,000-grain weight) general combiners. Involvement of one poor combiner in these crosses having high sca effects indicated that some complementary gene interaction is responsible for the high sca effects (Table-3) The results of current study have some bearing on breeding methodology to be followed in triticale under rainfed conditions. Triticale to a great extent behaves as a self pollinated crop. For the improvement of characters which exhibited predominant additive genetic variance, simple selection procedure would be effective.

Gill et al. (1978) also reported predominant additive gene action for most of the characters in triticale. Certain characters showed pre-dominance of non-additive genetic variance which could be exploited through a hybrid breeding programme. Chowdhury and Singh (1978) also reported the importance of non-additive gene action in triticale. From the present set of parents, JNK6T-233, UPT-78269, JNIT-78, JNIT-73 and JNK6T-231 were good and their exploitation in future breeding programme for rainfed areas may be expected to give desirable results.

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VARIABILITY AND HERITABILITY IN SEGREGATING GENERATION OF EGGPLANT

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ABSTRACT

In a study on three intervarietal crosses of eggplant in F2 generation, genotypic coefficient of variability was found to be high for fruit yield per plant, number of fruits per plant, fruit length and plant height. High heritability with high genetic gain was noted for these characters indicating the predominant role of additive gene action.

By resorting to hybridization, attempts are being made to widen the variability and to evolve high yielding strains. Inheritance of yield is diversified and governed by many genes, which include heritable and non-heritable variations. The present study was undertaken to evaluate F2 segregating population of the three intervarietal crosses to

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