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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Table 1:Estimates of phenotypic coefficient of variability (Pcv), genotypic coeffecient of variability (CCV), heritability (h2) and genetic advance in F_2 generation of eggplant

Characters	Mean	GCV	PCV	Heritability percentage	GA as percentage of mean
CROSS A (EP 36 x EP 42)					
Days to first flowering	58.85	7.14	8.97	63.41	11.72
Plant height	118.50	15.51	16.94	83.86	29.26
Total flowers per plant	33.51	15.28	19.33	62.44	24.87
Fruit length	9.29	25.04	28.42	77.61	45.44
Fruit diameter	22.08	15.77	17.76	78.85	28.84
Number of fruits per plant	15.58	36.55	56.86	41.33	48.41
Fruit yield per plant	1.12	47.24	57.17	68.29	80.43
CROSS B (EP 26 x EP 47)					
Days to first flowering	72.50	8.37	9.46	78.34	15.27
Plant height	122.40	13.99	15.47	81.86	26.08
Total flowers per plant	64.39	27.22	28.76	89.57	53.07
Fruit length	16.42	15.47	17.24	80.52	28.59
Fruit diameter	14.08	22.78	26.13	75.99	40.91
Number of fruits per plant	27.94	30.16	38.72	60.66	48.39
Fruit yield per plant	2.59	28.37	31.60	80.59	52.47
CROSS C (EP 47 x EP 36)					
Days to first flowering	60.85	6.13	8.07	57.69	9.59
Plant height	100.35	17.64	19.38	82.82	33.07
Total flowers per plant	53.57	27.86	30.00	86.17	53.28
Fruit length	15.33	17.22	19.05	81.71	32.07
Fruit diameter	19.82	18.12	20.28	79.89	33.37
Number of fruits per plant	28.21	28.35	37.18	58.14	44.54
Fruit yield per plant	2.20	25.71	30.49	71.11	44.67

assess the magnitude of variability and to understand heritable component of variation in eggplant (Solanum melongena L.)

MATERIALS AND METHODS

The F2 populations of three intervarietal eggplant cross viz., EP 36 X EP 42 (Cross A) , EP 26 X EP 47 (Cross B) and EP 47 X EP 36 (Cross C) were raised in a randomized block design and replicated twice. In each replication, there were 90 plants per cross raised at a spacing of 75 x 60 cm during Kharif 1987. The observations on the characters namely, days to first flowering, plant height, total flowers per plant, fruit length, fruit diameter, number of fruits per plant and fruit yield per plant were recorded on individual plant basis. Phenotypic coefficient of variability (PCV) and genotypic coefficient of variability (GCV) were computed by following the method of Burton (1952). Heritability estimates as per the method of Lush (1940) and genetic advance as per the method of Johnson et al (1955) were computed.

RESULTS AND DISCUSSION

The mean, genotypic and phenotypic coefficient of variability heritability and genetic advance as percentage of mean for different characters in the three intervarietal crosses are presented in Table 1 The

maximum GCV estimates were recorded for fruit yield per plant and number of fruits per plant in cross A, for days to first flowering in cross B and for plant height and total flowers per plant in cross C. In general, the GCV estimates were high for fruit yield per plant, number of fruits per plant, fruit length and plant height indicating less influence of environment on these characters. This suggests the presence of sufficient genetic variability which can be exploited by practising simple breeding method like pureline selection. Similarly, Chandha and Balwinder Paul (1984) reported high GCV for these characters.

Burton (1952) has suggested that GCV together with heritability estimate would give the best picture of the extent of advance to be expected of a selection. Heritability and genetic advance for different characters varied considerably (Table 1). High heritability indicates that effectiveness of selection for phenotypic performance is good, but it does not necessarily mean a high genetic gain for a particular character. However, high heritability estimates along with high genetic gain become more useful (Johnson **et al.**, 1955).

In the present study the estimates of heritability were found to be moderate to high for all the characters studied. High heritability with high genetic advance as percentage of mean was observed for fruit yield per plant, fruit length and plant height in cross A, except for days to first flowering in cross B and for fruit yield per plant, fruit length, fruit diameter and total flowers per plant in cross C. High heritability with high genetic advance for fruit yield per plant, number of fruits per plant, fruit length and plant height were reported earlier by Singh and Singh (1981). High heritability associated with high genetic gain indicates the predominant role of additive gene action in controlling the expression of these characters, viz., fruit yield per plant, number of fruits per plant, fruit length and plant height, in the present study. Therefore, selection based on phenotypic performance for these characters would be useful for achieving desired results. Days to first flowering had moderate heritability and low genetic gain indicating that the presence of large non-additive variance and its less effectiveness for selection.

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