Experimental Results

4.2.3 Genotypic coefficient of variation

Genotypic coefficients of variation (GCV) for different characters are also presented in Table 4.2. The highest genotypic coefficient of variation was observed for grain yield per plant (16.23%) followed by grain weight per main spike (13.57%), number of grains per main spike (12.88%), 100-grain weight (12.74%), number of productive tillers per plant (12.34%) and biological yield per plant (10.89%). On the other hand, the low GCV was recorded in harvest index (8.15%), plant height (7.80%), ear length (7.69%), days to 50% flowering (6.40%), grain filling period (5.00%) and days to maturity (2.48%).

4.2.4 Heritability

The broad sense heritability estimates for different characters are given in Table 4.2. Very high heritability estimates were observed for days to 50% flowering (96.83%), days to maturity (87.89%), grain filling period (84.87%), number of productive tillers per plant (82.18%) and plant height (82.03%). High heritability estimates were observed for ear length (73.85%), grain yield per plant (71.57%), biological yield per plant (70.61%) and 100-grain weight (67.41%), while harvest index (49.44%), number of grains per main spike (48.15%) and grain weight per main spike (41.74%) exhibited moderate heritability values.

4.2.5 Genetic advance expressed as per cent of mean

The estimates of genetic advance expressed as per cent of mean (Table 4.2) were found high for grain yield per plant (28.28%), number of productive tillers per plant (23.04%) and 100-grain weight (21.55%). The values were moderate for biological yield per plant (18.84%), number of grains per main spike (18.42%), grain weight per main spike (18.05%), plant height (14.55%), ear length (13.61%), days to 50% flowering (12.98%) and harvest index (11.80%). On the other hand, low value of genetic advance expressed as per cent of mean was observed for grain filling period (9.49%) and days to maturity (4.80%).

4.3 CORRELATION COEFFICIENTS

The correlation coefficients were estimated among pair of characters to find out association of grain yield per plant and its component at genotypic ($r_g$) and phenotypic ($r_p$) levels. The data given in Table 4.3 revealed that in general (except in few cases) the genotypic correlation coefficients were relatively higher than their...
corresponding phenotypic correlations. The results of correlation coefficients between different pairs of characters are presented below:

4.3.1 Correlation of grain yield per plant with component attributes

The grain yield per plant had highly significant and positive correlations both at genotypic and phenotypic levels with biological yield per plant ($r_g=0.8750$, $r_p=0.8373$), harvest index ($r_g=0.7672$, $r_p=0.7470$), number of productive tillers per plant ($r_g=0.7261$, $r_p=0.7070$), number of grains per main spike ($r_g=0.6388$, $r_p=0.6378$) and grain weight per main spike ($r_g=0.6287$, $r_p=0.6305$). On the other hand, grain yield per plant had non-significant and positive correlations both at genotypic and phenotypic levels with 100-grain weight ($r_g=0.2841$, $r_p=0.2951$), grain filling period ($r_g=0.1893$, $r_p=0.1638$) and ear length ($r_g=0.0619$, $r_p=0.0844$). Days to 50% flowering ($r_g=-0.1618$, $r_p=-0.1460$), days to maturity ($r_g=-0.1400$, $r_p=-0.1057$) and plant height ($r_g=-0.1258$, $r_p=-0.1005$) had non-significant and negative correlation with grain yield per plant.

4.3.2 Days to 50% flowering

The days to 50% flowering had highly significant and positive correlation both at genotypic and phenotypic levels with days to maturity ($r_g=0.9282$, $r_p=0.9124$). The days to 50% flowering had significant and positive correlation both at genotypic and phenotypic level with ear length ($r_g=0.3236$, $r_p=0.3025$). The days to 50% flowering had highly significant but negative correlations both at genotypic and phenotypic levels with grain filling period ($r_g=-0.8070$, $r_p=-0.7804$), 100-grain weight ($r_g=-0.8065$, $r_p=-0.7382$) and grain weight per main spike ($r_g=-0.6704$, $r_p=-0.5403$). The days to 50% flowering had significant and negative correlation both at genotypic and phenotypic levels with harvest index ($r_g=-0.3923$, $r_p=-0.3260$). The plant height ($r_g=0.2308$, $r_p=0.2257$) and number of productive tillers per plant ($r_g=0.2125$, $r_p=0.2077$) had positive but non-significant association with days to 50% flowering. The days to 50% flowering showed non-significant and negative correlation with number of grains per main spike ($r_g=-0.0925$, $r_p=-0.0713$) and biological yield per plant ($r_g=-0.0035$, $r_p=-0.0004$) at both genotypic and phenotypic levels.

4.3.3 Days to maturity

The days to maturity had highly significant and negative association with 100-grain weight ($r_g=-0.7366$, $r_p=-0.6566$), grain filling period ($r_g=-0.6715$, $r_p=-0.6231$) and grain weight per main spike ($r_g=-0.6317$, $r_p=-0.4667$) at both genotypic and phenotypic levels, while harvest index had significant and negative correlation at
genotypic level ($r_g=-0.3609$) and non-significant and negative correlation at phenotypic level ($r_p=-0.2660$) with days to maturity. Days to maturity showed non-significant but positive association correlation with plant height ($r_g=0.2663$, $r_p=0.2593$), ear length ($r_g=0.2401$, $r_p=0.2249$), number of productive tillers per plant ($r_g=0.1805$, $r_p=0.1763$) and biological yield per plant ($r_g=0.0161$, $r_p=0.0220$). Days to maturity showed non-significant and negative association with number of grains per main spike ($r_g=-0.0728$, $r_p=-0.0177$).

### 4.3.3 Grain filling period

The grain filling period had highly significant and positive genotypic association with 100-grain weight ($r_g=0.6451$, $r_p=0.5868$) and grain weight per main spike ($r_g=0.6114$, $r_p=0.4859$) at genotypic and phenotypic levels, while harvest index ($r_g=-0.2995$, $r_p=0.2470$), number of grains per main spike ($r_g=0.1530$, $r_p=0.1192$) and biological yield per plant ($r_g=0.0974$, $r_p=0.0754$) showed non-significant but positive association at genotypic and phenotypic levels with grain filling period. The grain filling period showed significant but negative correlation with ear length ($r_g=-0.3614$, $r_p=-0.3231$) at both genotypic and phenotypic levels, while the grain filling period showed non-significant and negative correlation with plant height ($r_g=-0.1753$, $r_p=-0.1635$) and number of productive tillers per plant ($r_g=-0.1647$, $r_p=-0.1625$) at both genotypic and phenotypic levels.

### 4.3.5 Plant height

Plant height exhibited non-significant but positive association with ear length ($r_g=0.1035$, $r_p=0.1031$) at genotypic and phenotypic levels. On the other hand, plant height had non-significant and negative correlation with number of productive tillers per plant ($r_g=-0.2440$, $r_p=-0.2274$), biological yield per plant ($r_g=-0.1880$, $r_p=-0.1584$), grain weight per main spike ($r_g=-0.1685$, $r_p=-0.1105$), number of grains per main spike ($r_g=-0.0719$, $r_p=-0.0451$), harvest index ($r_g=-0.0618$, $r_p=-0.0433$) and 100-grain weight ($r_g=-0.0307$, $r_p=-0.0218$) at both genotypic and phenotypic levels.

### 4.3.6 Number of productive tillers per plant

Number of productive tillers per plant had highly significant and positive correlation with biological yield per plant ($r_g=0.8396$, $r_p=0.8176$) at genotypic and phenotypic levels. Number of productive tillers per plant showed non-significant but positive association correlation with harvest index ($r_g=0.2876$, $r_p=0.2650$), number of grains per main spike ($r_g=0.1700$, $r_p=0.1609$), ear length ($r_g=0.1054$, $r_p=0.1070$) and grain weight per main spike ($r_g=0.0065$, $r_p=0.0198$) at genotypic and phenotypic levels.
levels. Number of productive tillers per plant showed non-significant and negative association with 100-grain weight ($r_g=-0.2071$, $r_p=-0.1725$).

4.3.7 Ear length

Ear length of main spike had non-significant but positive association with number of grains per main spike ($r_g=0.2570$, $r_p=0.2515$), biological yield per plant ($r_g=0.0750$, $r_p=0.0586$), grain weight per main spike ($r_g=0.0460$, $r_p=0.0709$) and harvest index ($r_g=0.0286$, $r_p=0.0819$) at both genotypic and phenotypic levels. This character had non-significant and negative correlation with 100-grain weight ($r_g=-0.2364$, $r_p=-0.2118$) at both genotypic and phenotypic levels.

4.3.8 Number of grains per main spike

Number of grains per main spike exhibited highly significant and positive correlation with grain weight per main spike ($r_g=0.7304$, $r_p=0.7685$) and harvest index ($r_g=0.7045$, $r_p=0.6893$) at both genotypic and phenotypic levels, while number of grains per main spike exhibited highly significant and positive correlation with biological yield per plant ($r_g=0.4217$) at genotypic level and significant and positive correlation with biological yield per plant ($r_p=0.3842$) at phenotypic level. The 100-grain weight ($r_g=0.1612$, $r_p=0.1562$) showed non-significant but positive correlation with number of grains per main spike.

4.3.9 Grain weight per main spike

Grain weight per main spike exhibited highly significant and positive correlation with harvest index ($r_g=0.8514$, $r_p=0.8217$) and 100-grain weight ($r_g=0.7647$, $r_p=0.6866$) at both genotypic and phenotypic levels. The biological yield per plant ($r_g=0.2905$, $r_p=0.2694$) showed non-significant but positive correlation with grain weight per main spike.

4.3.11 Biological yield per plant

The biological yield per plant had significant and positive association at genotypic level ($r_g=0.3610$) and non-significant but positive association at phenotypic level ($r_p=0.2814$) with harvest index. The biological yield per plant had non-significant but positive association with 100-grain weight ($r_g=0.0008$, $r_p=0.0202$) at genotypic and phenotypic levels.

4.3.10 Harvest index

The harvest index showed highly significant and positive association with 100-grain weight ($r_g=0.5334$, $r_p=0.5066$) at both genotypic as well as phenotypic level.