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Correlation of Some Important Characters in Wheat

It is often observed that one or more characters, qualitative and quantitative, may be correlated and the correlation can show the relative influence of various yield components on yield and indicate those on which more emphasis should be placed by plant breeder for selection.

Chinoy (1947) noted negative correlation between yield and length of vegetative period of wheat. Pal and Butany (1947) recorded a high positive relationship of yield with number of kernels per spike and average weight of grains per ear. Sikka and Maini (1962) noted positive correlation between yield and seed weight. Gandhi *et al* (1964) recorded positive correlation of yield with number of ears per plant and 1000 seed weight.

A large number of promising wheat cultures evolved at the variouswheat breeding stations were used. These belonged to diverse origin and had been built up to satisfy the specific needs of a number of agro-climatic conditions. During the year 1964–65, a set of 12 strains including standards, was tried at the R. M. College Farm, Narsan (Saharampur) in randomised block design. The strains chosen were NP 824, NP 830, NP 846, NP 871, NP 880, NP 890, C 281, C 306, K 68, Sanora-63, Sanora-64 and Larmarozo, sown in two row plots.

The data recorded are presented in Table 1.

TABLE 1.

Characters	r 12.3		r 13.2		r 23.1	
	Partial 'r'	Corresponding value of single 'r'	Partial 'r'	Corresponding value of single 'r'	Partial 'r'	Corresponding value of single 'r'
A	+.029	+.41	+.68*	+.56	+.78**	+.68*
B	+.49	+.76*	+.49	+.76	+.14	+.63
C	−.019	−.059	+.036	−.01	+.45	+.45
D	+.041	+.056	+.002	−.032	−.017	+.034
E	+.41	+.291	+.06	+.072	−.03	−.009
F	−.621*	+.341	−.092	+.291	+.05	−.046
G	+.84**	+.79	−.19	−.109	−.12	+.01

(1) *Yield of whole plant,* (2) *Weight of 100 grains and* (3) *Period from flowering to maturity :* The calculated partial 'r' values between yield of whole plant and 100 grain weight are non-significant when the third variable remains constant, while the values are highly significant for other two characters respectively, when second and first characters are constant similarly. It indicates that there is true relationship between first and third characters, second and third characters where second and first variables remain constant respectively.

(1) *Yield of whole plant* (2) *Number of grains per ear and* (3) *Length of ear :* The partial 'r' values are non-significant. It is the representation of this that there is no any true relationship between two factors when the third remains constant. Therefore, there is significant correlation when the effect of the third variable is eliminated.

(1) *Height of the plant,* (2) *Yield of the plant and* (3) *Period from sowing upto flowering :* The observed partial 'r' values are all non-significant. It shows that there is no true relationship between first, second and third characters where third, second and first are constant respectively.

(1) *Yield of whole plant,* (2) *Number of tillers per plant and* (3) *Length of ear :* The partial 'r' values of all the above characters are non-significant. It seems that all the three variables are independently associated and no relationship between first, second and third when third, second and first remain constant respectively with each other.

(1) *Number of tillers/plant,* (2) *Weight of 100 grains and* (3) *Length of ear :* The calculated partial 'r' values for all the above three variables are non-significant When third, second and first are constant respectively. So, all the characters are independent with each other.

(1) *Number of tillers/plant,* (2) *Number of grain per ear and* (3) *Weight of 100 grains :* The calculated partial 'r' values of first and second characters are negatively significant when third variable remains constant. It indicates that there is negative but significant correlation between first and third, second and third characters are negatively and positively non-significant when second and first variables remain constant respectively.

(1) *Number of grains per ear,* (2) *Period from sowing to flowering and* (3) *Height of plant.* The partial 'r' correlation values between number of

was negative and non-significant when second and first variables were remained constant respectively.

(1) *Length of ear,* (2) *Number of grains per ear and* (3) *Weight of 100 grain:* The calculated partial 'r' values between length of ear and number of grains per ear were positively significant when 100 grain weight remains constant. It represents that the first two characters are positively related with each other when third one remains constant while the values of second and third variables are non significant when second and first remain constant respectively. It indicated no relationship between these two characters.

(1) *Period from flowering to maturity,* (2) *Number of grains per ear and* (3) *Number of tillers per plant:* The partial 'r' values of correlation of all the three variables are positively non-significant while third, second and first variables remain constant with first and second, first and third, second and third each combinations of variables. It seems that there is no correlation in between all the three characters.

A negative but significant correlation was found between number of tillers per plant and number of grains per ear and positive but significant correlation was also found between length of ear and number of grains per ear, when 100 grain weight was constant.

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