# Correlation and path coefficient analysis of seed yield and yield components of linseed (*Linum usitatissimum* L.)

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## SUMMARY
Two hundred fifty germplasm lines of linseed alongwith three check varieties namely, Garima, Sweta and Parwati were evaluated in Augmented Block Design at Crop Research Station, Masodha, Faizabad, U.P. during *rabi* 2004-05. Significant variability existed in the germplasm collection. The most promising lines showing high seed yield along with high mean performance for yield contributing traits were identified as EC-22672, NDLS-164, NDLS-169 and NDLS-205-03-02. Seed yield per plant showed significant and positive correlation with number of capsules per plant, number of seeds per capsule, biological yield per plant, harvest index, number of primary branches per plant and test weight. Path analysis identified, biological yield per plant, number of capsules per plant, harvest index and test weight as important component having direct effects and number of seeds per capsule, number of capsules per plant via biological yield per plant showed indirect effects on seed yield.

**Key words :** Genetic variability, Correlation coefficient, Path coefficients.

Yield is governed by many physiological processes within the plant and influenced by many environmental factors. Therefore, direct selection for yield as such will not be reliable. Knowledge of correlation and path analysis help plant breeder to ascertain the real components of yield and provide an effective basis of phenotypic selection. Therefore, an attempt was made to gather information on these aspects in 250 genotypes of linseed (*Linum usitatissimum* L.).

## MATERIALS AND METHODS
The present experiment was conducted at Crop Research Station, Masodha, Faizabad (U.P.) during *rabi* 2004-05. The experimental material consisted of 250 linseed germplasm lines were planted in Augmented Block Design having 10 blocks with 3 standard varieties as check namely, Garima, Sweta, and Parwati. The checks were distributed randomly in each block. Each entries and check were grown in a single row of 25 m length, spaced 25 cm apart, distance of plants within rows were maintained at about 5-10 cm by thinning. The data were recorded on 10 competitive randomly selected plants for days to 50% flowering, days to maturity, plant height (cm), number of primary branches per plant, number of secondary branches per plant, number of capsules per plant, number of seeds per capsule, biological yield per plant (g), harvest index (%) and test weight (g).

The data on eleven quantitative characters from the experiment was utilized for estimation of correlation coefficient (Searle, 1961) and path coefficient (Wright,

1921 and Dewey and Lu, 1959).

## RESULTS AND DISCUSSION
### *Correlation coefficient:*
Simple correlation coefficients computed among the eleven characters are presented in the Table 1. Seed yield per plant showed highly significant and positive correlation with number of capsules per plant, biological yield per plant (0.764), number of seeds per capsule and harvest index. Thus these characters emerged as most important factors influencing seed yield in linseed. The available literature is also in confirmity with Naik and Satapathy, 2002. However, seed yield per plant had non-significant but positive correlation with plant height, number of primary branches per plant, number of secondary branches per plant, harvest index. Remaining two traits *viz.,* days to 50% flowering and days to maturity were negatively non-significantly associated. Biological yield per plant exhibited highly significant and positive correlation with number of capsules per plant, number of seeds per capsules. While this trait was negatively non-significantly correlated with days to 50% flowering and days to maturity. Number of seeds per capsule was positively significant associated with the days to 50% flowering and number of secondary branches per plant and it was highly significant and positively correlated with number of capsules/plant. Number of capsules per plant was non-significant and negatively associated with days to 50% flowering. Number of secondary branches per plant was highly significant and positively correlated with

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