

Correlation studies in cucumber (*Cucumis sativus* L.)

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ABSTRACT

Fruit yield had positive and highly significant association phenotypically and genotypically with vine length, internodal length, number of branches per vine, number of nodes per vine, fruit length, fruit diameter, flesh thickness, dry weight of fruit, average fruit weight, number of marketable fruits per vine, number of unmarketable fruits per vine and total number of fruits per vine. Strong association of these traits revealed that selection based on these traits would ultimately improve the fruit yield and it is also suggested that hybridization of genotypes possessing combination of such characters is most useful for obtaining desirable high yielding segregants.

Key words : Correlation, Corollary, Genotypic, Node and phenotypic

Cucumber (*Cucumis sativus* L.) is one of the most popular vegetables of the family Cucurbitaceae.

Although yield is usually the primary trait of interest, yield contributing traits are all corollary traits that a breeder must consider for eventual usefulness of genotypes evaluated. It is only natural, therefore, that attention is given to associations among traits during selection and testing of genotypes. Correlation, measured by a correlation coefficient is important in plant breeding because it measures the degree of association, genetic or non-genetic between two or more characters. Therefore, the purpose of this study was to investigate the correlation co-efficient in relation to fruit yield and few other quantitative characters in cucumber.

MATERIALS AND METHODS

Forty five genotypes selected for this study were collected from Olericulture Unit, Department of Horticulture, college of Agriculture, Dharwad and also from different pockets of northern Karnataka.

These varieties were sown during October 2004 at Horticulture farm, college of Agriculture, Bheemarayanagudi, Taluk – Shahapur, District, Gulbarga. The plot size was single row plots containing 10 plants in each row at a distance of 1.5 m between rows and 0.5m between plants. The usual cultural operations of irrigation, manuring and fertilizer applications, weeding were carried out regularly. The detailed observations for 5 plants per plot were recorded for the 20 characters under study.

Correlation coefficients were worked out according to the formula given by Al-jibouri *et al.* (1958) to determine the degree of association among the characters

as well as yield.

RESULTS AND DISCUSSION

The genotypic and phenotypic correlation coefficients (Table 1 and 2) indicated that the character total fruit yield per vine was positively and significantly correlated, both phenotypically and genotypically with vine length, internodal length, number of branches per vine, fruit length, number of nodes per vine, fruit diameter, flesh thickness, dry weight of fruit, average fruit weight, number of marketable fruits per vine total number of fruits per vine. This finding was in conformation with the works of Nagaprosuna and Ramrao (1989), Rastogi and Aryadeep (1990). The correlation of this character with days to first male and female flower, node number at which first male and female flowers appears, days to first fruit harvest was negatively correlated phenotypically and genotypically. Similar results were noticed by Rastogi and Aryadeep (1990).

Vine length exhibited positive significant correlation genotypically and phenotypically with number of nodes per vine. Association of this character with days to first male and female flower, node number at which first female flower appears and days to first fruit harvest was negatively significant.

Fruit length, fruit diameter had significant positive correlation phenotypically and genotypically with all the characters except vine length and internodal length. Similar results were realized by Choudhary *et al.* (1985) for days for first female flower emergence.

The results indicate that vines with profuse branching, more number of nodes and yielding higher number of marketable fruit would result in higher fruit yield per vine,