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RESEARCH PAPER

Genetic variability in quantitative characters of gladiolus (*Gladiolus* x *hybridus* Hort.)

MAHESH CHOUDHARY*, S.K. MOOND[1], ANOP KUMARI AND B.S. BENIWAL
Department of Horticulture, C.C.S. Haryana Agricultural University, HISAR (HARYANA) INDIA
(Email : balodamahesh@gmail.com)

Abstract **:** Twelve genotypes of gladiolus were evaluated to determine genetic variability, heritability, genetic advance and genetic gain for twenty six contributing characters. Significant variations were recorded for the various characters studied. Phenotypic and genotypic coefficients of variation were highest for number of cormels and weight of cormels produced per plant, indicating presence of sufficient genetic variability for selection in these traits. High heritability and high genetic advance for number of cormels per plant, weight of cormels per plant, leaf area, number of spikes per plot, number of corms per plot, number of florets remaining open at a time, number of spikes per plant, leaf width, spike diameter, weight of corm, rachis length, vase life of spike, number of corms per plant and plant height indicated the presence of additive gene effects in these traits and their amicability for direct selection. The non additive gene effects were evident in spike length, size index of corms, number of florets per spike, number of days to slipping thus warranting use of heterosis breeding for these characters. The selection on the basis of cormels per plant will be more effective for further breeding programme.

Key Words **:** Gladiolus, Genetic advance, Genetic gain, Heritability, Variability

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INTRODUCTION

Gladiolus (*Gladiolus* x *hybridus* Hort.) is an important cut-flower crop grown commercially in several parts of the world. However, commercial success of gladiolus cultivation like any other crop depends upon the availability of suitable cultivars to suit the particular climatic conditions and consumer preference of the cultivar. The consumer preferences changes with time. Hence, crop improvement is the need of the time to sustain the availability of desirable cultivars. Improvement through selection depends upon the variability existing in the available genotypes, which may be either due to different genetic constitution of cultivars or variations in the growing environments. Gladiolus is a vegetatively propagated crop through corms and cormels on commercial scale and selection is an easy method for varietal improvement in it. Selection is effective only when the observed variability in the population is heritable in nature. Genetic variance, heritability and other genetic parameters are reported to be subject to fluctuations with changing environments (Lal *et al*., 1985 and Misra and Saini, 1988). Genetic variability in a group of germplasm is a pre-requisite for a successful breeding programme. Since, most of the characters influencing yield are polygenic, it is essential for plant breeders to estimate the type of variation available in the germplasm. The type of breeding programme for developing suitable varieties depends largely on the availability of genetic variability in a given species. Heritability estimates give a measure of transmission of characters from one generation to the other, as consistency in the performance of the selection depends on the heritable portion of the variability. Thus, enabling the plant breeder for isolating elite selections in the crop. Hence, the magnitude of the variation and the estimates of the heritability and genetic advance are the important parameters on which the success of selection

*** Author for correspondence.**
[1]Department of Floriculture and Landscaping, College of Horticulture and Forestry, Jhalarapatan JHALAWAR (RAJASTHAN) INDIA