

International Journal of Agricultural Sciences Volume **8** |Issue 2| June, 2012 | 357-359

RESEARCH PAPER

Selction indices studies in greengram [Vigna radiata (L.) Wilczek]

M.D. KHANPARA¹, J.H. VACHHANI^{*}, L.L. JIVANI¹, V.H. KACHHADIA¹ AND H.G. SHEKHAT¹ Main Oil Research Station, Junagadh Agricultural University, JUNAGADH (GUJARAT) INDIA (Email: jhvachhani@jau.in)

Abstract : Fifty-eight diverse genotypes of greegram were evaluated in a Randomized Block Design with three replications for the study of selection indices under rainfed conditions during *Kharif* 2010. Thirty-one selection indicates involving seed yield and four yield components were constructed using the discriminant function technique. Among the single character indices, number of pods per plant exhibited higher genetic advance and relative efficiency over straight selection for seed yield. The efficiency of selection increased with the inclustion of more number of characters in the index. The index based on four characters *viz.*, seed yield per plant, number of pods per plant, number of clusters per plant and number of pods per cluster recorded the highest genetic advance and relative efficiency.

Key Words : Discriminant function, Greengram, Relative efficiency, Selection indices

View Point Article : Khanpara, M.D., Vachhani, J.H., Jivani, L.L., Kachhadia, V.H. and Shekhat, H.G. (2012). Selction indices studies in greengram [*Vigna radiata* (L.) Wilczek]. *Internat. J. agric. Sci.*, 8(2): 357-359.

Article History : Received : 19.12.2011; Revised : 14.03.2012; Accepted : 20.04.2012

INTRODUCTION

In India, greengram is grown on an area of about 30.41 lakh ha with production of 11.73 lakh tones and with a productivity of 389 kg/ha. In Gujarat, greegram is grown in about 1.62 lakh ha with total production of 0.7 lakh tones and a productivity of 432 kg/ha. (Anonymous, 2009). Thus, the productivity of greengram is low at the state as well as national level. Therefore, there is urgent need to improve the productivity of greengram by proper breeding tools. Yield is governed by a polygenic system and is highly influenced by the fluctuations in the environment. Hence, selection of superior genotype based directly on yield would not be very rewarding in many cases. The effectiveness of component approach to selection breeding is well appreciated. An application of discriminant function developed by Smith (1936) helps to idenfity important combination of yield components useful for selection by formulating suitable selection indices. Therefore, keeping above said facts in mind, the present investigation was planned with thirty-one selection indices were constructed in all possible combinations of the four yield contributing characters and seed yield per plant to calculate discriminant functions for constructing and identifying the most efficient selection indices.

MATERIALS AND METHODS

Fifty-eight diverse genotypes of greengram were sown in a randomized block design with three replications at the Instructional Farm, Department of Agronomy, Junagadh Agricultural University, Junagadh, during *Kharif* 2010 under rainfed conditions. Each entry was accommodated in a single row of 3.0 m length spaced at 45 cm between row and 10 cm between plants within the row. The genotypes were randomly allotted to the plot in each replication. The experiment was surrounded by guard row to avoid damage and border effects. All the recommended packages of practices were followed for raising healthy crop. Data were recorded on randomly selected five plants from each genotype and average value was used for the statistical analysis for twelve characters *viz.*, days to

^{*} Author for correspondence.

¹Regional Cotton Research Station, Junagadh Agricultural University, JUNAGADH (GUJARAT) INDIA