African Journal of Agricultural Research

Afr. J. Agric. Res.

Vol. 2 No.4

African Journal of Agricultural Research Vol. 2(4), pp. 182-186, April, 2007
ISSN 1991- 637X© 2007 Academic Journals

Full Length Research Paper

Levels of variability in groundnut (Arachis hypogaea L.) to cercospora leaf spot disease – implication for selection

A. U. Izge[1]*, Z. H. Mohammed[2] and A. Goni[2]

[1]Department of Crop Production, Faculty of Agriculture, University of Maiduguri, P.M.B. 1069, Maiduguri, Borno State, Nigeria.
[2]Department of Crop Protection, Faculty of Agriculture, University of Maiduguri, P.M.B. 1069, Maiduguri, Borno State, Nigeria.

*Corresponding author. E-mail: bamsyizge@yahoo.com. Tel: +234 (0) 8030636782

Accepted 19 April, 2007

Abstract

Groundnut (Arachis hypogaea L.) is an important crop both in subsistence and commercial agriculture in arid and semi-arid regions of the world. Leaf spot diseases caused by fungus have been a major destructive disease of groundnut and could cause a yield loss of up to 50 % or more. A two-year experiment was conducted during the cropping seasons of 2002 and 2003 at the Faculty of Agriculture Research Farm, University of Maiduguri, Nigeria. The objective of the study was to determine the reaction of different groundnut varieties to cercospora leaf spot disease to create basis for selection for cercospora leaf spot disease tolerance. The experiment consisted of twenty-four groundnut varieties, laid out in a randomized complete block design (RCBD) with three replications. The analysis of variance (ANOVA) indicated highly significant difference among the groundnut varieties in all the characters studied. The results indicated that ICGV-SM-93531, ICGV-IS-96802, ICGV-IS-96827 and ICGV-IS-96808 had the lowest cercospora leaf spot incidence. The variety ICGV-IS-96808 that produced the highest kernel yield also had the lowest days to 50% flowering and incidentally is among varieties that recorded the lowest leaf spot incidence. The study found tremendous level of variability existing among the groundnut varieties that is essential in crop improvement. This study recommends that development or selection of tolerant varieties to leaf spot should be based on their level of incidence. This will be the only effective measure in decreasing production costs and protect the environment from pollution. Potential therefore exist for selection among the groundnut varieties evaluated for cercospora leaf spot disease tolerance. There is however, a need to undertake further studies in order to determine the type and the number of genes controlling cercospora leaf spot disease tolerance in groundnuts for enhanced breeding strategies.

Key words: Groundnut, leaf spot, tolerance, incidence, selection, breeding strategy.