



EFFECTS OF VARIETY, FERTILIZER AND FUNGICIDE ON PEARL MILLET DOWNY MILDEW SEVERITY AND YIELD IN TWO DIFFERENT AGRO- ECOLOGICAL ZONES IN NIGERIA

¹Sheriff, H. H., ²Aliyu, M. and ³Abdullahi, R.

¹Lake Chad Research Institute, Maiduguri, Nigeria.

²Department of Crop production, Faculty of Agriculture and Agricultural Technology Abubakar Tafawa Balewa University, Bauchi, Nigeria.

³Department of Soil Science, Faculty of Agriculture, University of Maiduguri, Nigeria.

Corresponding Author's E-mail: aliyuzrx@gmail.com **Tel:** 08039595946

ABSTRACT

Downy mildew caused by *Sclerospora graminicola* (Sacc.) Schroet is a serious constraint to the cultivation and improvement of pearl millet in Nigeria. Therefore, a field trial was carried out during the 2014 rainy season at Bauchi (latitude 10⁰17' N, 9⁰ 49' E) and Maiduguri (latitude 11⁰ 51' N, 13⁰ 05' E) located in the in Northern Guinea Savanna and Northern Sudan Savanna of Nigeria, respectively. The aim was to evaluate the effects of fungicide and fertilizer on downy mildew and the performance of pearl millet varieties. Randomized Complete Block Design was used with factorial arrangement of treatments, which comprised five nitrogen fertilizer rates (0, 15, 30, 45 and 60 kg N/ha), metalaxyl fungicide (treated and untreated) and two millet varieties (PEO 5984 and Super SOSAT). Results indicated significant ($p < 0.05$) difference between locations, varieties, fungicides and among nitrogen rates. With respect to the locations, severity of downy mildew was lower, with better crop performance in terms grain yield at Bauchi than in Maiduguri. In respect of the varieties, severity of downy mildew was lower in the millet variety, PEO 5984 which also gave more yields, than Super SOSAT. There was significant stepwise decrease in downy mildew severity by 11.3% and 8.3%, and yield increase 293.2 kg/ha from each successive additional N-rates. Metalaxyl seed treatment significantly decreased downy mildew severity by 10.2 and 11.6% at Bauchi and Maiduguri, respectively. Overall, treatment combination of PEO 5984 seed dressed with metalaxyl at 2 g a.i/kg, and application of fertilizer N₆₀P₃₀K₃₀ gave significantly ($p < 0.05$) good control of downy mildew and yield increase.

Keywords: Downy Mildew, Fertilizer, Metalaxyl, Pearl Millet, Severity.