Progenies selection for resistance to *Fusarium verticillioides* in maize crop

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INTRODUCTION

Fusarium ear rot is a common disease in maize crop that affects yield and reduce nutritional and phytosanitary quality of the grains. This study aimed to investigate the relationship between rot grains and *F. verticillioides*.

METHODOLOGY

The experiments were conducted at the Center for Scientific and Technological Development in Farming - Federal University of Lavras, Brazil. Segregating populations ($F_{2:3}$, RC_{11}, RC_{12}) and F_1 were obtained from the intraspecific cross between L75 (resistant) x L43 (susceptible) lines. In the 2017/2018 crop season, all generations were inoculated and were subjected to the blotter test. For the evaluation of severity and incidence, a diagrammatic scale was used (0 at 5). With the weight of 100 grains data, was performed the correlation between the incidence and weight of 100 grains variables and the principal component analysis (PCA) was also obtained by the biplot chart using software R v. 3.5.1..

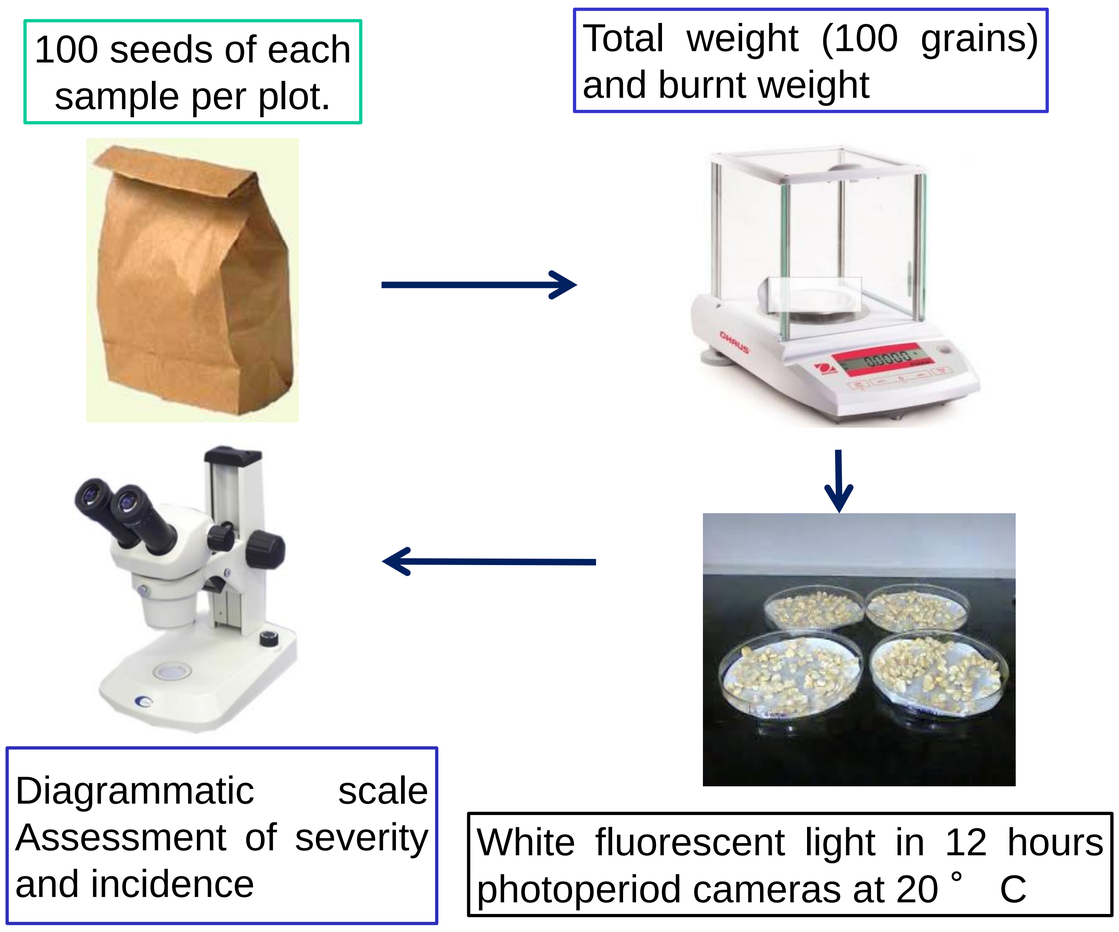

Figure 1. Blotter test methodology scheme.

RESULTS AND DISCUTION

Pearson's correlation between incidence and weight of rot grains was not significant (r: 0.1074; p-value: 0.087), so it is not possible to conclude that the correlation between these characters is not zero. PCA shows that principal component 1 (PC1) and principal component 2 (PC2) account for 32.33 and 24.55% of the variation, respectively. The first major component shows strong associations between healthy weight and total weight.

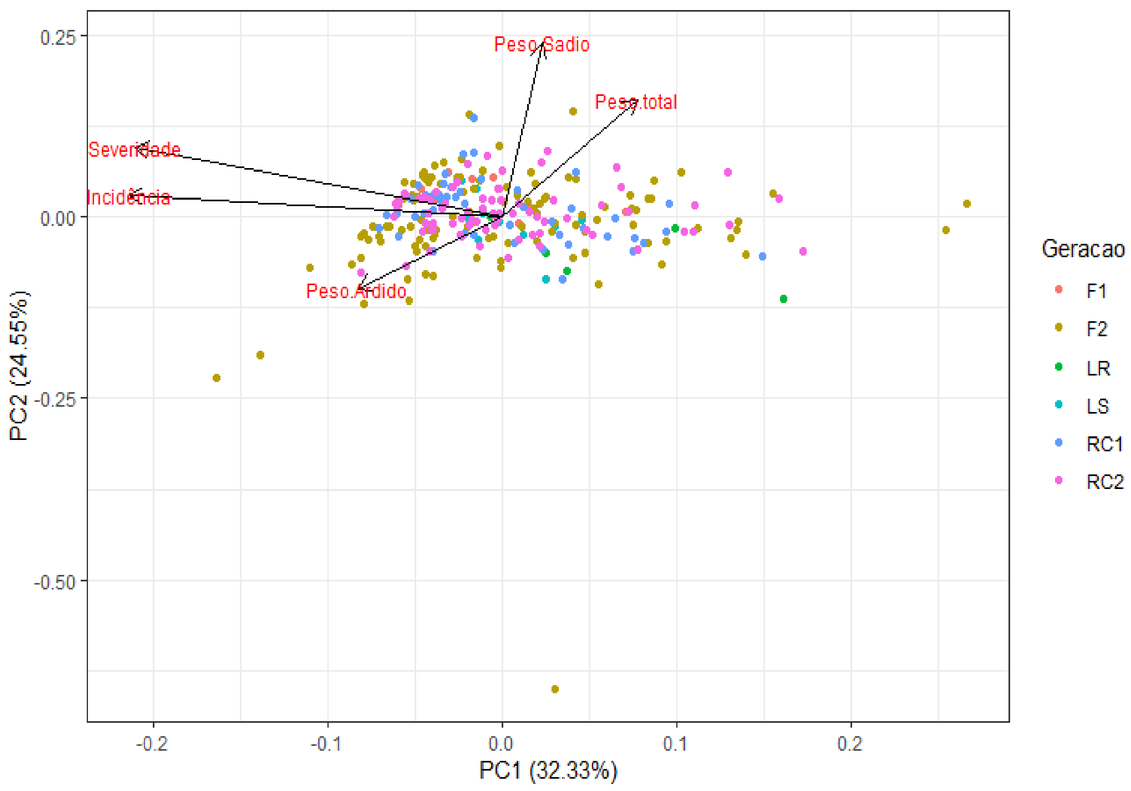

Figure 2. Biplot of the principal component analysis for the variables weight of 100 grains, symptomatic grain weight, total weight, severity and incidence of *F. verticilliodes.*

The first component also has associations for severity and incidence. The PCA graph indicates that there is no direct correlation between total weight and incidence, this factor is also supported by the correlation result, indicating that disease incidence is not directly related to production.

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