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INCIDENCE OF *Sclerotinia sclerotiorum* IN SEED AS INFLUENCED BY FUNGICIDE APPLICATIONS AND GENOTYPES.

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White mold (WM), caused by the fungus *Sclerotinia sclerotiorum* (*Ss*), is a devastating disease in irrigated areas of common bean in Brazil. *Ss* survive in seeds as dormant mycelium in testa and cotyledons. The transmission of *Ss* by seed is an important mean of the fungus dispersion, especially in seed production areas free of white mold. In the Neon method for detection of *Ss* in seeds, seeds are incubated on a semi-selective agar substrate, PDA, amended with bromophenol blue and antibiotics, with the medium acidity adjusted to pH 4.7. The principle of this method is based on the change of the substrate color from blue to yellow as the result of the oxalic acid action produced by the pathogen around the seeds. Here, we evaluated the effect of number of fungicide applications and genotypes on seed infected with *Ss* (SISs). We used seeds from three trials, in which treatments were arranged as 3 x 4 factorial combinations of genotypes (VC 17, Pérola or Madrepérola) and number of fungicide applications (0, 1, 2 or 3). Two trials were conducted in Viçosa and one in Oratórios, Zona da Mata region, Minas Gerais State, Brazil, during the fall-winter season, with sprinkler irrigation, in a field naturally infested with sclerotia of *Ss*. Under field conditions, the line VC 17 has exhibited partial resistance, Pérola has exhibited moderate resistance, and Madreperola has exhibited susceptibility to WM. The fungicide fluazinam (0.625 L/ha) was first applied at the beginning of the flowering stage and repeated at intervals of eight days. We used the method of Neon-R for detection of SISs. Four hundred normal seeds (chalky, discolored and shriveled seeds were not used) from each field treatment were randomly placed on top of the culture medium. We used 20 plates with 20 seeds in each plate. A randomized block design with four replications was used. The plates were incubated at 20 ºC in the dark. After two days on, plates with yellow colors around seeds were isolated for observation for further sclerotia production. After 8 to 12 days in the incubation chamber, plates with presence of sclerotia indicate that at least one seed in 20 was infected with *Ss*. On average, SISs was 0.068% in the trial 1 (Viçosa, 2015), 0.099% in the trial 2 (Viçosa 2016), and 0.109% in the trial 3 (Oratórios 2015). WM pressures in these trials were low, low/moderate and moderate/high, respectively. On average across fungicide levels, SISs was 0.090% for Madrepérola, 0.104% for Pérola, and 0.146% for VC17. On average across genotypes, SISs was 0.181% (no fungicide), 0.069% (one application of fluazinam), 0.028% (two applications), and 0.090% (three applications). SISs for Madrepérola decreased from 0.208% (no fungicide) to 0.021% (one fungicide application). In this cultivar, further application of fungicide did not affect SISs. SISs for Pérola decreased between 64% (three fungicide) and 91% (two fungicides) in comparison with those harvested from plants untreated with fungicide (0.229%). The effects of fungicide levels were not clear on SISs for VC17. In this line, SISs varied from 0.042% (two applications) to 0.167% (three applications). Without fungicide, SISs for VC17 was 0.104%. Our results suggest that fungicide application can decrease seed incidence of *S. sclerotiorum* in some common bean genotypes, but not in others.

Keywords: *Phaseolus vulgaris*; White mod; Fungicide; Genotype resistance; Neon.

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