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WITHIN-ROW PLANT DENSITY FOR COMMON BEAN GENOTYPES WITH PARTIAL RESISTANCE TO WHITE MOLD. L. R. V. SOUSA[1]; A. F. F. SOUZA[1]; T. C. FERREIRA[2]; P.M.L. SILVA[1]; P.H. TEIXEIRA[1]; R.C. LIMA[2]; T. J. PAULA JÚNIOR[2]; R. F. VIEIRA[3]. [1]Universidade Federal de Viçosa, Dep. de Fitotecnia, Viçosa, MG, 36570-000 Brazil/ [2]Epamig, Viçosa, MG/ [3]Embrapa-Epamig, Viçosa, MG. E-mail: lucasvieiraufv@gmail.com

White mold (WM) is the most serious common bean disease during the fall-winter season in Brazil. In the fall-winter season, farmers prefer to sow seeds of the “carioca” (beige with brown stripes) market class, especially those with an indeterminate (Type III) growth habit. Currently, many farmers have used within-row plant density of 5-6 plants/m of carioca cultivars (Type III) to manage WM. Recently, the carioca line VC 17 (Type III) has exhibited high grain yield even under high WM pressure in the field. Here we evaluated the effects of within-row plant densities on the line VC 17. We hypothesized that using genotype with partial resistance to WM farmers can increase the within-row plant density currently used and, hence, prevent stand failure in the field without increase WM intensity. A sprinkler irrigated trial was conducted during the fall-winter season in a field naturally infested with sclerotia of *Sclerotinia sclerotiorum* in Oratórios, Minas Gerais State, Brazil. Treatments were arranged as 4 x 2 x 2 factorial combination of within-row densities (4, 7, 10 or 13 plants/m), genotypes (Madrepérola or VC 17), and fungicide (with or without). Under field conditions, the cultivar Madrepérola is susceptible to WM. The fungicide fluazinam (0.62 L/ha) was applied at the flower onset followed by one application 10 days later. The statistic design was a randomized complete block with four replications. Each plot had four 4 m-long rows, spaced 0.5 m apart. The two central rows were used for data collection. Lodging (1 = no lodging, 9 = excessive lodging), WM incidence (WMI) and WM severity index (WMSI) were evaluated at plant maturity. After harvest, sclerotia that had fallen off on the soil surface were collected in five randomly positioned quadrants (400 cm^2) in each plot and weighted. Plants from each plot were threshed in bags and the sclerotia mix with seeds were collected by hand and weighted. WM mold pressure was moderate. Within-row densities did not affect lodging, WMI, WMSI, and weight of sclerotia on the soil surface and mixed with seeds. Genotype affected lodging and weight of sclerotia on the soil surface and mixed with seeds (all with $p < 0.001$). Fungicide affected lodging, WMI, WMSI, and weight of sclerotia on the soil surface and mixed with seeds (all with $p < 0.001$). The interaction genotype x fungicide was significant ($p = 0.014$) for the weight of sclerotia mixed with seeds, whereas the interaction within-row density x fungicide was significant for yield ($p = 0.014$). The triple interaction was not significant. VC 17 lodged less than Madrepérola (4.9 vs 5.7) and fewer sclerotia were collected in the plots of VC 17 than in the plots of Madrepérola (7.4 vs 22.0 kg/ha). Fungicide decreased lodging from 5.6 to 5.0, WMI from 85% to 49%, WMSI from 54% to 22%, and weight of sclerotia on the soil surface from 22.5 to 6.8 kg/ha. Without fungicide, more sclerotia were found mixed with the seeds of Madreperola than mixed with the seeds of VC 17 (11.7 vs 6.5 kg/ha, $p < 0.001$). With fungicide, genotypes did not affect the weight of sclerotia mixed with seeds ($p = 0.37$). Within-row densities did not affect yield when fungicide was applied. Without fungicide, yield was higher with 4 to 10 plants/m (average of 2484 kg/ha) than with 13 plants/m (1992 kg/ha). The results of this trial did not support our hypothesis. Further studies are needed under different WM pressure before a conclusion can be drawn.

Keywords: *Phaseolus vulgaris*; *Sclerotinia sclerotiorum*; Avoidance; Fungicide.

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