**Spatial pattern of Maize bushy stunt phytoplasma disease in a late season experimental plot in Santa Catarina**

Maria Cristina Canale1, Rodolfo Vargas Castilhos1, Cristiano Nunes Nesi1

1Centro de Pesquisa para Agricultura Familiar (Cepaf), Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina (Epagri), Chapecó, SC. cristinacanale@epagri.sc.gov.br

Outbreaks of Maize bushy stunt (MBS) disease have been occurring in many important producing regions in Brazil since 2015, especially in crops from late season. The disease was observed in Chapecó (western Santa Catarina) in 2019 in the R2 stage of a late sowing maize plot established with the hybrid P30F53 VYHR. The plants were stunted, with multiple and undeveloped cobs with few kernels and the typical leaf reddening. MBS disease is caused by the Maize bushy stunt phytoplasma (MBSP), which is transmitted by the corn leafhopper *Dalbulus maidis* (Hemiptera: Cicadellidae) in a persistent-propagative relationship. The spatial pattern of MBS-diseased plants was determined in the plot, which was sowed manually with insecticide-untreated seeds in February/2019. The plot consisted of 24 rows 30 m long and spaced 0,9 m apart. Therefore, there were 2880 maize plants in the plot that were all evaluated by visual assessment 11 weeks after sowing and the plants were assigned as diseased or healthy and mapped. Diseased plants showed similar severity symptoms. The statistical analysis of MBS spatial pattern was performed using Rcitrus package of the R software. Disease incidence in the plot was 7.57% and dispersion index was calculated to four different quadrat sizes (2x4, 3x6, 4x8 and 5x10). The diseased plants were distributed in a random pattern, with exception to 3x6 quadrats size (p = 0.02), which resulted in aggregated pattern. A Monte Carlo approach also indicated a random pattern of disease distribution (p = 0.12) in a simulated 3 m radius, with estimated 1.84 diseased neighbors near to other infected plants. According to a dispersal “Kernel”, which describes a disease gradient, MBS-diseased plants were predominant in the plot borders; also, gradients of diseased plants could be extended to the center of the plot. Possibly MBSP inoculum was brought by the leafhopper vector from older plantings and insects were attracted to the plants of the plot border. Secondary dissemination could be suggested; however, as the evaluated plot is relatively small and the diseased plants were noticed in a late development stage, there is a chance that the diseased plants in the center also might be a result of primary dissemination. The results reinforce the vector management in the early stages of the crop, by using insecticide-treated seeds and monitoring leafhopper incidences in order to deploy registered insecticides mainly in the maize crop borders. Support: FAPESC.