

Selection of alfalfa for resistance to the foliar pathogen *Curvularia geniculata* in the field

M.R de Ávila*¹, M. Dall' Agnol¹, J.A. Martinelli¹, G. B. P. da Silva¹, T.N. dos Santos¹, E.A. Motta¹, L.S. Garcia¹, L.A. Graminho¹, C. Bremm¹, M.M. Kopp²

*PhD Student, Federal University of Rio Grande do Sul; ¹Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil; ²Embrapa South livestock

*marianarockenbacha@hotmail.com

Alfalfa is considered the 'Queen of Forages' and one of the most cultivated forage legumes in the world, but it has some specific requirements before it can reach high productivity and persistence. The low persistence of alfalfa could, in part, be linked to foliar diseases. Genetic resistance is a widely used strategy and probably the most practical solution for disease control, since it is not only the most economical and efficient mechanism for such control but is also environmentally friendly. However, little is known of the interaction between foliar diseases and alfalfa genotypes used in Rio Grande do Sul, the southernmost state of Brazil. Due to that, we set out to identify the foliar diseases affecting alfalfa and to verify the genetic variability regarding resistance to the main foliar disease encountered on alfalfa genotypes under field conditions. Evaluation of resistance to *C. geniculata* was undertaken in two physiographic regions of Rio Grande do Sul: at the Southern Brazilian Centre for Livestock Research (CPPSUL) (31°20'S, 54°06'W), in Bagé and at EEA Eldorado do Sul (30°05'S, 51°39'W). We evaluated five alfalfa genotypes for resistance to the fungal isolates, using the following genotypes: the Brazilian commercial cultivar 'Crioula' (used as control), 'E₁C₄' and 'CPPSul' (both grazing tolerant genotypes) plus the US cultivars 'ABT-805' (grazing tolerant) and 'CUF-101' (grazing susceptible). Seeds of each genotype were obtained UFRGS, for 'Crioula', 'E₁C₄' and CPPSul and from United States of America for 'ABT-805' and 'CUF-101'. We used a completely randomised block statistical design with three replicates, with each block consisting of individual lines 1 m long and, where the cuts were made, leaving a 50 cm borders with 50 cm between lines and 1 m between blocks. In the second week of October 2014, we inoculated the alfalfa genotypes with a *C. geniculata* conidial suspension (1.6×10^6 ml⁻¹). We covered each plant parcel with plastic film to promote a moist environment and hence conidia germination after field inoculation. Evaluation was made 15 days after inoculation in the four central plants of each experimental unit. The percentage of leaf area damaged in the inoculated leaflets was visually estimated using a scale varying from 0 to 100% in respect to the proportion of the leaf covered by lesions. Statistical analysis was done using mixed models (SAS Inst. Inc., Cary, NC). The 'Crioula' and 'E₁C₄' genotypes presented smaller lesions and were more resistant to *C. geniculata* (P<0,001). We found that 'CUF-101' showed the highest susceptibility of all the genotypes evaluated, with 35 % and 28 % disease severity at the EEA and CPPSul field.

Keywords: alfalfa, resistance, foliar pathogen, genetic resistance, grazing tolerance, susceptibility