280-1 **Meta-analytical models for studying the relationship between rust severity and soybean yield from uniform fungicide trial datasets**
(Modelos meta-analíticos no estudo da relação entre severidade da ferrugem e produtividade da soja em dados de ensaios cooperativos de fungicidas)

Autores: **SILVA, F. D. L. D.** - felipedallalana@gmail.com (UFRGS - Uiversidade Federal do Rio Grande do Sul) ; **ZIEGELMANN, P. K.** (UFRGS - Uiversidade Federal do Rio Grande do Sul) ; **MAIA, A. . D. H. N.** (CNPMA/EMBRAPA - Embrapa Meio Ambiente) ; **GODOY, C. V.** (CNPSO/EMBRAPA - Embrapa Soja) ; **PONTE, E. M. D.** (UFRGS - Uiversidade Federal do Rio Grande do Sul)

Resumo

Soybean rust and crop yield data from a 7-year uniform fungicide trial datasets (n=198) were analyzed under a two-stage meta-analytical framework. First, for each trial, linear regression was used to model the relationship between maximum rust severity and yield with data from all treatments. The intercept and the slope represented the attainable yield (kg/ha) and yield loss per percentage point (p.p.) increase of disease severity (kg/ha/p.p.), respectively. Second, univariate random-effects and mixed effects models were fit coefficient data; the latter to examine the effect of preventive or curative application of the first fungicide spray at flowering in the trial. For the random-effects model, mean intercept and slope were 2.976 kg/ha (CI: 2.855,3; 3.096,6) and -17,7 kg/ha/p.p. (CI: -19,0; -16,4), respectively. For the mixed effects model, a Wald test showed a significant effect of the timing of rust onset for both the intercept (p=0,007) and the slope (P<0.001). Mean intercept and slope were 3.138,9 kg/ha (CI: -2.970,6; 3.307,2) and 15.7 kg/ha/p.p. (CI: -17.58; -13.96), respectively, in trials with preventive application and 2794.7 kg/ha (CI: 2612.6; 2976.8) and -20.5 kg/ha/p.p. (CI: -22.4; -18.6) in trials with curative application. Attainable yield was in average 344.2 kg/ha lower and additional 4.8 kg/ha was lost in average for a unitary increase of percent severity in curative applications, compared to preventative applications.