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Efficiency da adubação com silício e rizobactérias na supressão de arroz da brusone em condições de sequeiro.

A. C. Alves de Souza¹, M. C. Corsi de Filippi², G. B. da Silva³, B. de Melo Martins⁴, T. P. de Sousa⁴, M. V. de Barros Côrtes², A. S. Prabhu²

¹Lavras University Federal, Lavras, Brazil

²Embrapa Rice and Bean, Plant Pathology, Santo Antônio de Goiás, Brazil

³UFRA, Plant Pathology, Belém, Brazil

⁴UFG, Goiânia, Brazil

macrisfillippi@gmail.com

Silicon (Si) is considered as a beneficial element for increasing plant growth and development with corresponding increase in grain yield, besides controlling different rice diseases. The main aim of the present investigation was to evaluate the efficiency of bioagents singly and in combination with different doses of silicon fertilization in controlling leaf blast, in upland rice, under no tillage and in rotation with soybean. A field experiment was conducted during two consecutive years in Embrapa Rice and Bean Research Center. The lay-out was a randomized block design with four repetitions. The treatments totaling 10 consisted of 5 doses of calcium and magnesium silicate (0, 1, 2, 4 and 8 ton.ha⁻¹) singly or in combination with a mixture of two PGPR's (*Pseudomonas fluorescens* + *Burkholderia pyrrocinia*). The calcium and magnesium silicate was applied by broadcasting in the field 30 days before planting soybean. The bioagents were applied by seed microbiolization and soil drenching. Leaf blast was assessed 60 days after planting and the data were submitted to analysis of variance. The results showed statistical differences among Si doses and in combination with bioagents in relation to the suppression of leaf blast in both years. The doses 4 and 8 tons.ha⁻¹ of (SiCaMg) in combination with bioagents reduced leaf blast by 85.34% and 99.88% in the first year and 59.10% and 50.48% in the second year, respectively, compared to control.

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Evaluation of resistance to Ramularia leaf spot in different German barley cultivars under field conditions

B. Rodemann, N. Zamani-Noor

Julius Kühn-Institut, Inst. f. Plant Protection in field crops and grassland, braunschweig, Germany

bernd.rodemann@jki.bund.de

Ramularia leaf spot (RLS), caused by *Ramularia collo-cygni*, has recently become a more frequent problem in barley cultivations not only in Germany but also worldwide. When temperature and humidity are favorable, infection can happen any time from the beginning of flowering stage to the maturation of barley. Control of RLS needs application of several different disease management strategies. Using resistant cultivars should be a main aspect of an integrated access to reduce the destruction of RLS. Previous studies have shown that the resistance to RLS varies widely among barley genotypes and cultivars, but any cultivar has yet been identified that exhibits complete immunity or resistance. At the present study, replicate field trials with natural infection on 3 different locations in Germany were carried out in 2013 and 2014 to evaluate susceptibility and resistance of 86 winter barley and 37 spring barley genotypes under natural field conditions. The amount of disease severity (%leaf necrotic area) and area under the disease progress curve (AUDPC) was assessed during growing season. Additionally, spore traps were used to determine the timing of spore dispersal and spore concentration during growing season.

Our results showed significant differences ($P \leq 0.05$) between the cultivars and between the locations. Disease severity was relatively lower in 2013 especially in Ahlum, Region of Braunschweig. A few barley cultivars have a relatively higher level of RLS resistance. Cultivars Lomerit and Hobbit showed a low resistance in whereas cultivars California and Lonni were found to be highly resistant. Very low numbers of Rcc conidia were found from the beginning of growing season to end of April. The number of spores increased slightly from beginning until mid of May almost one week before the first symptoms were detected in winter barley cultivations. Unfortunately we could not find the main source of inoculum around the field trials. Spore concentration increased strongly three weeks later when the plants were completely covered with necrotic spots and bunches of conidiophores carrying conidia emerging on the leaves. These spores should be the primary inoculum for spring barley cultivations. The results of this study could be useful for developing better strategies for more effective control of the disease.