

C18. Development of Bacterial Inoculants for Grasses

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Grasses inoculation in Brazil can be applied by the farmers but it is not common in Brazil. More than 30 years was used in the selection procedure to elect a diazotroph that can be used as a potential inoculant that can be applied to different plant tissues and can improve plant growth by direct and indirect effects such as: biological nitrogen fixation (BNF), phytohormone production, biological control, etc. Many new bacterial species were described and the comprehension of bacterial diversity in plants is well known and more and more new species are discovered. Recently, an industry in Brazil developed the first product for this purpose but we still expect the results of its application. Other countries used this technology for more than 20 years? In 2008, Embrapa presented a inoculant formulation to be used in sugarcane, based on the natural contribution of this biological process to this culture. This recipe, that contains five bacterial species of endophytic diazotrophs, was applied in several field experiments and the application was described to be used during the planting period and after each cutting. Another example of a new inoculant is the product to be used in maize. It can be applied as a seed cover with part of the nitrogen recommended for the culture. The experiments applied the selected strain together with the reduction of 50% of the total N-fertilizer. Maize hybrids and varieties were tested and the best results were obtained by the inoculation of hybrids at the "safrinha" planting period. The selected strain showed 25% of BNF contribution to the plant. But other cereals, which strain will be elected? There is much more to do. The next step is to describe a method that identify plant genotypes that can receive more contribution of this biological process and decrease the use of high doses of N-fertilizers in the agriculture, without losing crop productivity.