BIOFERTILIZERS FOR GRASSES AND CEREALS: WHAT APPLICATIONS OF THIS TECHNOLOGY USING SELECTED DIAZOTROPHIC BACTERIA ARE VIABLE IN BRAZIL?

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Biofertilizers are all products based on living microorganisms and many are able to promote directly, or indirectly, vegetative growth by several mechanisms. These products contain selected diazotrophic bacteria. Strain selection, plant genotype, environment conditions will be important aspects and on the other side of the industrial production: physiological state at the time of cells and quality of the inoculant products. But what can we offer for field application? Sugarcane can obtain most of its nitrogen from biological N_2 fixation (BNF). The BNF contribution has shown variation from zero to 70 %. The impact of saving just half of the nitrogen fertilizer commonly used in the crop in Brazil would save approximately 180 million Mg of N fertilizer per year. The opportunity to use a biofertilizer containing a mixture of diazotrophic bacteria is being tested in several sites in Brazil. The experiments already performed have shown results of the application of the product are related to the variety used, N content of the soil and bacteria applied. For cereals, the natural contribution of BNF is lower but the application of these bacteria can enhance water and nutrient uptake as a secondary effect of hormonal balance of the root growth. Using selected bacteria applied in different regions of Brazil, the best combination has been obtained with maize resulting in an increment of plant productivity, especially when a hybrid genotype was used. Brazil does not have a product for this purpose and new industrial processes must be certified for their quality and expectation of yield production. So, investments of the private sector must be made.

Key words: diazotrophic bacteria, biofertilizer, biological nitrogen fixation