

IS THERE HOPE FOR BNF IN COMMON BEANS?

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Although since 1984 there are *Rhizobium* strains available for common bean inoculation in Brazil, a survey in 2014 showed that only 15% of the Brazilian farmers adopt inoculation as a routine practice. Part of this disbelief in relation to common beans inoculation can be attributed to the fact that supposedly, bean inoculation would not be able to support increased yield levels in high-tech farms, being appropriate only for small farms. A series of demonstration units carried out since 2012, under farm conditions in the Cerrado region, have showed that a 10.8% mean increase in yield were obtained only with inoculation in relation to the treatment without inoculation and without nitrogen fertilization (whose average yield was 3163 kg ha⁻¹). It was also found that inoculation with supplementation of 60 kg ha⁻¹ of N promoted yield levels (4010 kg ha⁻¹) higher than those with 120 kg ha⁻¹ N as urea (3411 kg ha⁻¹). These results confirmed that bean inoculation replaces successfully half of the nitrogen fertilizer commonly used in high-tech farms. Only for the irrigated areas in the Cerrado region and in the Southeast of Brazil we estimate an yearly economy of US\$ 14 million dollars with the use of inoculation, not mentioning the environmental benefits of the reduced use of nitrogen fertilizers. Along with the results already available for small-scale agriculture and with the recent release of new *Rhizobium* strains, more efficient than the commercial ones, we can see that yes there is hope for bean inoculation. In the horizon of research teams, challenges related to seed-treatment with pesticides, inoculant formulation and inoculation methods will need special attention.

Keywords: Rhizobium; Inoculation; Cerrado region.