



Tropentag, September 20-22, 2017, Bonn

“Future Agriculture:  
Socio-ecological transitions and bio-cultural shifts”

## Agroeconomic Viability of Co-Inoculation in Common Beans

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### Abstract

This study aimed to analyse the agroeconomic viability of the common bean cropping system using the Pérola variety, under sprinkler irrigation and co-inoculated with *Rhizobium tropici* and *Azospirillum brasilense*. It were tested seven treatments composed by different doses and forms of application that are economically feasible for the use of common bean producers in commercial and family agriculture of the Brazilian states of Goiás and Minas Gerais. The tested treatments were: control treatment (TC); nitrogen fertilised witness (TN), which received 80 kg ha<sup>-1</sup> of nitrogen (178 kg ha<sup>-1</sup> of urea); seed inoculation with two doses of *Rhizobium tropici* (Rt); inoculation of the seed with two doses of *Rhizobium tropici* plus one dose of *Azospirillum brasilense* (Rt+Ab1s); seed inoculation with two doses of *Rhizobium tropici* plus two doses of *Azospirillum brasilense* (Rt+Ab2s); seed inoculation with two doses of *Rhizobium tropici* plus spraying of two doses of *Azospirillum brasilense* (Rt+Ab2p); and inoculation of the seed with two doses of *Rhizobium tropici* plus spraying of three doses of *Azospirillum brasilense* (Rt+Ab3p). All treatments used the Perola variety. Economic viability analysis was done using partial budgeting. Partial budgets are based on the principle that small crop management changes have effects in one or more of the following areas: (1) Increase in income; (2) Reduction or elimination of costs; (3) Increase in costs; and (4) Reduction or elimination of income. The net impact of those four effects will be the positive financial changes (1 + 2) minus the negative financial changes (3 + 4). A positive net indicates that farm income will increase due to the change, while a negative net indicates the change will reduce farm income. Best economic performance on commercial farms was obtained with the combination of seed inoculation with two doses of *Rhizobium tropici* and then receiving three doses of *Azospirillum brasilense* carried out in a spray, which led to greater profitability, i.e. return rates of 90 % in Goiás state and 114 % in Minas Gerais state for commercial farming, and of 13 % for family farming in Goiás state.

**Keywords:** *Azospirillum brasilense*, co-inoculation, partial budgeting, *Rhizobium tropici*