

## IMPROVING SHELF LIFE OF LEGUME INOCULANTS IN EAST AFRICA

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Adoption of legume inoculation with rhizobia by small-scale farmers in East Africa, and resultant increase in biological nitrogen fixation, requires that quality inoculants meeting minimum standards be available. In the case of BIOFIX, the only commercially-available inoculant in East Africa, that standard is at least  $10^9$  rhizobia  $g^{-1}$ . We examined the effects of carrier material and storage conditions on the populations of two industry standard rhizobia, *Bradyrhizobium japonicum* USDA 110 for soybean (*Glycine max*) and *Rhizobium tropici* CIAT 899 for common bean (*Phaseolus vulgaris*) over 165 days using the drop plate method on Congo Red Yeast Extract Mannitol Agar. Viable populations of rhizobia differed significantly between carriers ( $P < 0.001$ ) and rhizobia strain ( $P < 0.05$ ). *R. tropici* CIAT899 prepared with filter mud carrier achieved a shelf life of 135 days and *B. japonicum* USDA110 contained over  $10^9$  cells  $g^{-1}$  for 105 days. Both of these results fall below the stated six month expiry period of BIOFIX. Replacing filter mud carrier with vermiculite resulted in an inferior product but both more thorough sterilization and refrigerated storage after a 14 day curing stage improved it. While BIOFIX meets reasonable standards in terms of its rhizobia, it must not be carried over between seasons, even under refrigeration, its expiry period should be shortened and opportunity exists to improve its quality.