Soybean *(Glycine max (L.)* Merril) is referred to as the golden crop of the future. It contains approximately, 40% proteins, 20% oil, 14% carbohydrates, various minerals and vitamins. Approximately 70,000-100,000 tonnes of soybean are required in Kenya with only 5,000 *tonnes* produced locally and the rest imported. Human consumption is expected to rise ten-fold in the next ten years. The number of soybean producers is still small and fragmented across the country. The small scale farmers in Kenya are resource poor and cannot afford the expensive inputs in terms of nitrogen fertilizer to increase soybean production. The farmers do not also make use of inoculants that provide an alternative and cheaper source of nitrogen for crop production than the N fertilizers. Soybean crops as are grown by farmers receive no inoculants and little or no commercial nitrogen fertilizer. To avoid this need for inoculation, soybean breeders in the International Institute of Tropical Agriculture, Nigeria developed new soybean genotypes for Africa. These genotypes known as tropical *glycine* cross (TGx) nodulate with *Bradyrhizobium* sp. population indigenous to African soils. These genotypes have been tested in some parts of Africa with great success. However, the TGxs have not been tested in Kenya. The main objective of this study was to investigate nitrogen fixation in promiscuous soybean varieties in two different agroecological zones in eastern Kenya. About fifty different isolates were obtained from the two study sites Kiboko, south east Kenya and Kaguru in east Kenya. About 20 % of the isolates were slow growers while 80 were fast growers. Four different rhizobia groups were identified upon restriction of the DNA of the isolates with Msp I and Hae III. Isolates, M8, M10, M12, M20 and M22 were identified as being potential source of effective inoculum for soybeans in the study areas. The results of Most Probable Number counts indicated that the total bradyrhizobia population in Kiboko was between 2.59×10^4 and 1.89×10^5 per gram of soil. In Kaguru, the approximate total bradyrhizobia was between 1.04×10^2 and 7.56×10^3 per gram of soil. The population size of taxonomically defined slow growing rhizobia in Kiboko was between 2.59×10^2 and 1.89×10^3 cells per gram of soil while in Kaguru, the population was between 1.33×10^2 and 9.72×10^2 cells per gram of soil. The approximate rhizobia population specific to TGx genotype in Kiboko was between 7.81×10^2 and 5.67×10^3 while in Kaguru, the population was between 2.37×10^2 and 1.73×10^3 cells per gram of soil. In terms of crop performance in field conditions, TGx varieties and Magoye performed better than Nyala and Gazelle in all the parameters that were assessed. From this study, persistence of introduced commercial inoculant, *Bradyrhizobium japonicum* USDA 110 in the two study sites was also evident. Inoculants can be a potent alternative to chemical nitrogen fertilizer as well as a renewable resource that is capable of sustaining food production with little purchased inputs. The small scale farmers in the two study sites are resource poor and will benefit a lot by using this cheaper technology to boost soybean production